

1945

Certain medical and allied health services,with special application to rural communities in Iowa

Christine Newark
Iowa State College

Follow this and additional works at: <https://lib.dr.iastate.edu/rtd>



Part of the [Health and Medical Administration Commons](#), [Home Economics Commons](#), and the [Public Health Commons](#)

Recommended Citation

Newark, Christine, "Certain medical and allied health services,with special application to rural communities in Iowa " (1945).
Retrospective Theses and Dissertations. 13162.
<https://lib.dr.iastate.edu/rtd/13162>

This Dissertation is brought to you for free and open access by the Iowa State University Capstones, Theses and Dissertations at Iowa State University Digital Repository. It has been accepted for inclusion in Retrospective Theses and Dissertations by an authorized administrator of Iowa State University Digital Repository. For more information, please contact digirep@iastate.edu.

INFORMATION TO USERS

This manuscript has been reproduced from the microfilm master. UMI films the text directly from the original or copy submitted. Thus, some thesis and dissertation copies are in typewriter face, while others may be from any type of computer printer.

The quality of this reproduction is dependent upon the quality of the copy submitted. Broken or indistinct print, colored or poor quality illustrations and photographs, print bleedthrough, substandard margins, and improper alignment can adversely affect reproduction.

In the unlikely event that the author did not send UMI a complete manuscript and there are missing pages, these will be noted. Also, if unauthorized copyright material had to be removed, a note will indicate the deletion.

Oversize materials (e.g., maps, drawings, charts) are reproduced by sectioning the original, beginning at the upper left-hand corner and continuing from left to right in equal sections with small overlaps.

ProQuest Information and Learning
300 North Zeeb Road, Ann Arbor, MI 48106-1346 USA
800-521-0600

UMI[®]

NOTE TO USERS

This reproduction is the best copy available.

UMI

**CERTAIN MEDICAL AND ALLIED HEALTH SERVICES
WITH SPECIAL APPLICATION TO RURAL
COMMUNITIES IN IOWA**

by

Christine Newark

**A Thesis Submitted to the Graduate Faculty
for the Degree of
DOCTOR OF PHILOSOPHY
Major Subject: Consumption Economics**

Approved:

Signature was redacted for privacy.

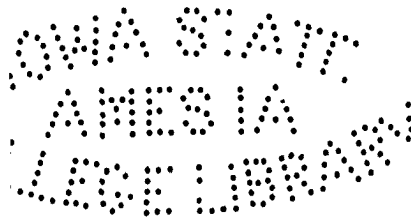
In Charge of Major Work

Signature was redacted for privacy.

Head of Major/Department

Signature was redacted for privacy.

Dean of Graduate College



Iowa State College

1945

UMI Number: DP12380

UMI[®]

UMI Microform DP12380

Copyright 2005 by ProQuest Information and Learning Company.
All rights reserved. This microform edition is protected against
unauthorized copying under Title 17, United States Code.

ProQuest Information and Learning Company
300 North Zeeb Road
P.O. Box 1346
Ann Arbor, MI 48106-1346

R720
N422c
c.1

ii.

ACKNOWLEDGEMENTS

The writer wishes to express her appreciation to all those who have helped in the preparation of this thesis. Dr. Elizabeth E. Hoyt helped in the organization and development of the thesis and gave the writing careful and painstaking criticism which was invaluable. Dr. Margaret G. Reid also helped with the original planning and organization. Dr. Ray E. Wakeley and Dr. Gerhardt Tintner read the manuscript and gave helpful suggestions and encouragement.

Mrs. Lydia White and her clerical staff gave valuable assistance in computations which laid the groundwork for some of the analysis. Mrs. Margaret Paulson and her secretarial staff helped with preparation of the manuscript. To all of these the writer is grateful.

T7968

TABLE OF CONTENTS

	<u>Page</u>
PART I. INTRODUCTION	
INTRODUCTION	2
Statement of the Problem	2
Reasons Why Study is Important at the Present Time	4
Growing interest in reorganization of medical and allied health services	4
Impact of war on interest in reorganization	6
Post-war planning	7
Some Reasons for Separate Consideration of Rural Communities	9
Differences in need between rural and urban communities	10
Economic and social conditions which affect demand and supply of health services	13
Lack of availability of services in rural communities.	14
GENERAL FRAMEWORK FOR THE STUDY	15
Kinds of Problems Consumers Face With Respect to Medical Care and Allied Health Services	15
Uncertainty about expenses which will be incurred to provide services needed	16
High cost	17
Uncertainty about income if sickness should fall upon the breadwinner	17
Psychological problem concerning need	18
Incidence of some disability dependent upon other people	18
Physical availability of service of satisfactory quality	18
Lack of information	18
Psychological problem of choice	19
Kinds and Characteristics of Health Services Needed	20
Personnel as compared with impersonal services	20
Preventive as compared with curative services	22
Group as compared with individual services	23
Mandatory and voluntary services	24
Types of Changes Proposed	26
More group practice centered about hospitals and health centers	27

	<u>Page</u>
Expansion of public health service	27
Increased use of insurance principle	27
Fostering of conditions conducive to the development of preventive medicine	28
Increased subsidy by various government units to families and groups	29
Participation by lay groups along with professional groups in developing and directing medical and allied services	29
Agencies Important in Evolving New Policy	30
Federal government	30
Professional organizations	31
Private foundations	32
Lay groups	33
Trade groups	34
Groups representing government, professional, and lay organizations	34

PART II. DEMAND FOR MEDICAL AND

ALLIED HEALTH SERVICE

STATUS OF HEALTH AND BIRTH RATE WITH SPECIAL REFERENCE

TO RURAL IOWA	37
Some General Aspects of Measurement of Health Status by	
Use of Mortality and Morbidity Rates	38
Mortality rates	39
Need for adjustment of crude rates	39
Precautions in interpretation of specific morbidity rates	41
Morbidity rates and health defects	43
Adequacy of data on morbidity and health defects and on mortality	43
Sources of data and their limitations	44
Ways in which extent of morbidity and health defects are expressed	46
Mortality Rates with Special Reference to Rural Iowa	47
General mortality rates in Iowa	47
Trends in mortality rates	47
Mortality rates in Iowa by age group and by size of locality	52
Mortality rates in Iowa localities compared with United States	54
Reasons for higher mortality rates in places from 2,500 to 10,000 in population	55
Infant mortality with special reference to rural Iowa ...	59
Trend of infant mortality rates in Iowa and the United States	60

	<u>Page</u>
Comparison between rural and urban infant mortality rates in Iowa	62
Comparison of infant mortality rates in Iowa and United States	62
Infant mortality rates in Iowa communities in contrast with those of other states	65
Comparisons among Iowa counties	68
Maternal mortality rates in Iowa	69
Trend of maternal mortality rate in Iowa and United States	69
Maternal mortality rates in Iowa compared with other states	70
Maternal mortality rates in localities of various sizes	71
Principal causes of death	71
Reasons for limited presentation of causes of death	71
Principal causes of death in Iowa and United States	73
Comparison of principal causes in localities of various sizes in Iowa and United States	74
Principal causes as related to age structure of population	77
Morbidity Incidence and Rates in Iowa and the United States	79
Incidence of disabling illness on any one day	80
Number of illnesses per year	81
Duration of disability	82
Causes of illness	85
Morbidity rates in Iowa	87
Extent of Physical Defects in Selected Groups in United States	92
Physical defects among men examined for military service	92
Proportion of men rejected because of health defects	93
Causes for rejection from military service	94
Comparative rejections among rural and urban selectees	96
The Hagerstown Study	98
Health status of Farm Security Administration families	99
Health defects among population of Iowa	100
Birthrates with Special Reference to Rural Iowa	101
Trend in birth rate	101
Birth rates in rural and urban areas in Iowa	103
Relation of birth rate to need for health service ...	106
Summary and Conclusions	107

OTHER FACTORS AFFECTING DEMAND FOR MEDICAL AND ALLIED

HEALTH SERVICES AND CERTAIN EVIDENCE OF DEMAND	113
Population Background of Need for Health Services in Iowa ..	113
Size of population	114
Distribution of population by size of locality	115
Age distribution of population	117
Status and trend of age composition of Iowa	
population	118
Effect of age distribution of the population upon	
needs for medical care and allied services	122
Unpredictability and unevenness of incidence of need for	
medical and allied health services	125
Factors Affecting Sense of Need for Medical and Allied	
Health Services	127
Education	129
Use of Available Medical and Allied Health Services	130
Main sources of information concerning use of medical	
and allied services	131
Sources of general information concerning use	
of facilities	131
Sources of information concerning use of facil-	
ities by farm families	133
Use of physicians' services in Iowa and the United	
States	134
Illnesses attended by physicians	134
Home and office calls of physicians	135
Specific services received	138
Medical attendance at births	139
Use of general hospitals in the United States and Iowa..	145
Proportion of population hospitalized and average	
length of period of hospitalization	145
Occupancy rates of general hospitals	146
Births in hospitals	149
Consumer Income as a Factor Affecting Demand for	
Medical and Allied Health Services	152
Relation between family income and need for medical	
and allied services	153
Percentage of families having expenditures for medical	
and allied health services as related to family	
income	155
Number of services demanded as related to family	
income	157
Consumer income and types of medical and allied	
services demanded	157

	<u>Page</u>
Consumer income and expenditure for medical and allied health services	162
Expenditures per capita	162
Expenditures per family	163
Health expenditures of selected Iowa families ...	169
Expenditures for health in families of various sizes.	179
Relative Preference for Medical and Allied Services and Other Consumer Goods and Services	180
Community Income as a Factor Affecting Demand for Medical and Allied Health Services	183
Summary and Conclusions	187

PART III. SUPPLY OF MEDICAL AND ALLIED HEALTH SERVICES

SUPPLY OF PHYSICIANS WITH SPECIAL REFERENCE TO RURAL

AREAS OF IOWA	192
Standards for Measuring Adequacy of Supply of Medical and Allied Health Services	192
Standards for measuring adequacy of supply of health services in general	192
Quantitative standards	193
Qualitative standards	195
Standards for determining adequacy of supply of physicians	196
Quantitative standards	196
Indistinct line between quantitative and qualitative standards	198
Qualitative standards	200
Status and Trend in Supply of Physicians	202
Sources of data on the supply of physicians	202
Difference in ratios of population per physician among the states	203
Total supply of physicians	203
Supply of general physicians and of specialists..	204
Trends in the ratios of population per physician in the United States	208
Differences in population-physician ratios by type of locality	211
Classification of areas	211
Distribution of Iowa physicians by counties	212
Distribution of physicians by size of locality ..	215
Distribution of specialists in Iowa	221
Summary	225

	<u>Page</u>
Trends in population-physician ratio with special reference to rural areas	225
General change in United States	225
Change in number of physicians relative to population in Iowa	226
Absolute change in Iowa	226
The percentage change in distribution of physicians	228
Other Characteristics of Supply of Physicians in	
Rural Areas	230
Relative age of physicians in rural areas	231
Mobility of residence of physicians in rural areas ..	235
Some Factors Affecting Supply of Physicians	238
Some factors affecting the total supply of physicians	238
Factors tending to increase supply of physicians.	238
Factors tending to limit or decrease supply of physicians	243
Some factors affecting the supply of physicians in rural areas	245
Future of Supply of Physicians in Rural Areas	250
Evaluation of present status and trends	250
Shrinkage in relative number of physicians not necessarily indicative of decreased avail- ability of service	251
Continued urbanization as cause for apprehension	251
Indications that trend toward concentration of physicians in urban areas may continue	252
Possible steps to maintain or increase supply of physicians in rural areas	253
Summary and Conclusions	254
SUPPLY OF HOSPITAL FACILITIES	259
General Considerations	259
Types of services that need to be considered	259
Registered and non-registered hospitals	260
Classification of hospitals	261
Classification by type of service	261
Classification by ownership or control	262
Sources of information concerning supply of hospitals	262
Professional registers of hospitals	263
Studies by United States Public Health Service ..	263
Survey by United States Bureau of Census	264
Surveys sponsored by Commission on Hospital Care.	264
Need for information	266

	<u>Page</u>
Standards useful in examining supply of hospital services	266
Standards for registered hospitals	267
Suggested quantitative standards	268
Standard used in this thesis	272
Trends in Supply of Hospital Facilities in United States	273
Percentage increase in hospitals	273
Total change in hospitals	274
Percentage change in hospitals by type of control	274
Percentage change in hospitals by type of service	274
Increase in hospital beds per 1,000 population	279
Outlook	280
Status of Supply of Hospital Facilities in Iowa	281
Total supply of hospitals in Iowa	281
Number of hospitals	281
Total hospital bed capacity in Iowa	281
Bed capacity in general hospitals in Iowa	284
Bed capacity in certain special hospitals in Iowa	285
Iowa as compared with other states	285
Distribution of general hospitals in Iowa	288
Distribution of general hospitals in various localities in the United States as a whole ..	288
Distribution of general hospital beds in Iowa by size of locality	288
Implications	292
Ownership or control of hospitals in Iowa	295
Composition of hospital ownership in Iowa	295
Change in ownership of hospitals in Iowa from 1930-1940	295
Distribution of hospital beds in Iowa by ownership of hospitals	299
Relative importance of proprietary U.S. non-profit hospitals in various areas of Iowa ...	301
Implications	302
Some specific hospital services in Iowa	302
Expenditures for hospital services in Iowa	303
Summary and Conclusions	306
 SUPPLY OF PUBLIC HEALTH SERVICES	 308
General Considerations	309
General scope of public health services in the United States	309
Changes in types of public health services provided with special reference to Iowa	310
Starting points in public health services	310
Expansion of public health services	311

	<u>Page</u>
General changes in public health services in Iowa since 1930	312
To sum up	314
Standards for measuring extent of public health service	315
Standards of appraisal of public health work	315
Types of standards useful in measuring the extent of public health services and their value	318
Recommended quantity standards for public health work	320
Sources of information concerning the extent of public health service	323
Status of Public Health Services	325
Variety of specific activities carried on by individual states	325
General status of full-time public health service units in the United States	327
General status of full-time health service in Iowa	329
Status of staff of public health service	330
Local departments of health	330
State agencies concerned with public health	337
Expenditures for public health services	339
General picture of total funds from various sources used for State-administered public health service in Iowa and the United States as a whole	340
Per capita expenditures for public health services by local communities	342
Percentage distribution of expenditures of state agencies which control funds for public health services	345
Per capita expenditure by state agencies for various types of public health services	346
Trends in Public Health Organization and Expenditures	351
Growth of local health units in the United States and Iowa	352
County or multi-county health units without general jurisdiction	353
District health units	354
County or multi-county boards of health	357
Trend in expenditures for public health services in Iowa	359
Rural Sanitation in Iowa	362
General survey of public health sanitation in the United States and Iowa	363
Studies of rural sanitation needs	365

	<u>Page</u>
Rural sanitation in Iowa	367
Extent of public water supplies in Iowa	367
Approved public water supplies in Iowa	368
Private water supplies for farm homes in Iowa	375
Extent of public sewage disposal systems in Iowa .	376
Rural school sanitation	379
Milk sanitation	381
Place of federal aid in expansion of rural sanitation	393
Details on certain other types of activities carried on by public health agencies	386
Quarantine in rural communities	386
Direct preventive service for individuals	387
Diagnostic services	388
General scope	388
Tuberculosis case-finding	389
Venereal disease clinics	392
Tumor clinics	393
Dental clinics	394
Pneumonia typing stations	394
Curative services	394
Services of clinics	395
Furnishing of biological supplies	395
Nursing services	396
Maternal and infant care	396
Services for crippled children	397
Education	398
Some Factors Affecting Supply of Public Health Services ..	401
Summary and Conclusions	403

PART IV. PAYING FOR MEDICAL AND ALLIED HEALTH SERVICES

PAYING FOR MEDICAL AND ALLIED HEALTH SERVICES	410
Price of Services of Physicians and Hospitals	410
Price as a factor affecting demand for medical and allied services	411
High price along with low income as an aspect of inability to pay	411
Psychological attitude toward debt	411
Price as a factor affecting provision of other commodities	412
Effect of fee-for-service system on the nature of services made available	412
The price-setting process	413
Agreement, formal or informal, among physicians ..	413
Price discrimination	414
Prices actually charged	415

	<u>Page</u>
Extension of credit	419
Source of Funds for Medical and Allied health Services.	420
Philanthropy	420
Development of free or low-cost clinics	422
Development of cooperative and community plans.	423
Taxation	425
Maintenance of Hospitals	426
Summary and Conclusions	427

SOME BEGINNINGS IN GROUPING OF MEDICAL AND ALLIED

HEALTH SERVICES	429
Producer-sponsored Clinics	430
Patterns of producer-sponsored clinics	430
Producer-sponsored groups operating on fee-for-	
service basis	431
Clinic-centered group	431
Hospital-centered group	433
Producer-sponsored clinics with prepayment plans ..	434
Producer-sponsored prepayment plans in urban	
areas	434
Producer-sponsored prepayment plans in rural	
areas	435
Appraisal of producer-sponsored clinics	436
Consumer Cooperatives for Health Services	438
Urban consumers' health cooperatives	438
Health cooperatives in rural areas	440
Sandhills Region Health Association, Thedford,	
Nebraska	441
South Plains Cooperative Hospital Association .	442
Attitude of medical profession concerning	
cooperatives	443
Cooperatives and the medical profession	443
Appraisal of consumer health cooperatives	444
Community Health Center	445
Rural hospital as health center	446
Hillsdale Community Health Center	447
Community health centers sponsored by phil-	
anthropic groups	449
Integrated Hospital System	451
The plan itself	451
Base hospital	452
District hospitals	452
Small local hospitals	454
Rural health center	454
Example of integrated hospital system	454
Appraisal of integrated hospital plan with	
respect to Iowa	456

	<u>Page</u>
Canadian Municipal Doctor Plan	459
The plan and its extent in Canada	459
Appraisal of municipal doctor plan	461
Some Attitudes Toward Grouping of Health Services	462
Committee on Costs of Medical Care	462
American Medical Association	463
Farm groups	464
Farm Bureau Federation	464
Farmers Union	464
American Country Life Conference	465
General Appraisal of Grouping of Medical and Allied	
Health Services	466
Advantages to physicians	466
Advantages to consumers	467
Disadvantages	467
Summary and Conclusions	468
 VOLUNTARY, PRIVATE INSURANCE AS RELATED TO MEDICAL	
AND ALLIED HEALTH SERVICES	470
Insurance Principle Applied in General to Medical	
and Allied Health Services	471
Principle of insurance	471
Application of insurance to medical and allied	
health services	472
Classification of insurance programs related to	
medical and allied health services	473
Type of risk covered	473
Eligibility requirements	474
Form in which consumers receive benefits	475
Agency providing insurance	475
Source of funds	475
Degree of compulsion	476
Classification used in thesis	476
Commercial Health and Accident Insurance	476
Group health insurance offered by insurance companies	477
Group insurance in general	477
Group insurance for rural people	477
Farm Bureau insurance companies	477-a
Farm Bureau insurance in other states	477-b
Health insurance provided by farm groups	477-b
Appraisal of commercial insurance	478
Advantages in commercial insurance	478
Weaknesses	478
Adequacy of commercial insurance	481
Place of commercial insurance	481

	<u>Page</u>
Non-profit Associations Employing Insurance Principle	482
Blue Cross hospital service plan	483
Definition and purpose	483
History of Blue Cross plan	484
Benefits	485
Costs	485
Eligibility and methods of enrolling	485
Extent of Blue Cross	487
Control of Blue Cross	491
Appraisal of hospital service plans	494
Medical service plans	498
Definition	498
History	498
Benefits	499
Cost	501
Eligibility	502
Extent of enrollment	502
Control	503
Coordination with Blue Cross plans	504
Appraisal of medical service plans	504
Summary and Conclusions	506

FEDERAL AND STATE ACTION RELATING TO CERTAIN MEDICAL AND

ALLIED HEALTH SERVICES, 1930-1944	511
Old and New Elements in Government Action Relating to Health Services	512
Chronological Sketch of Recent Government Action Relating to Medical and Allied Health Services	513
1910-1920	514
1920-1930	514
1930-1940	515
Relief measures of early thirties	515
Social Security Act, 1935	516
National Health Conference, 1938	517
National Health Bill of 1939	519
Federal acts relating to cancer and venereal disease control	521
State and local action in thirties	521
1940-1945	521
Bills relating to hospital construction	521
Bills due to war	522
Bills to expand provisions of Social Security Act ..	523
Federal Grants to State and Local Programs for Certain Medical and Allied Health Services	524
Grants for expansion of local public health units	524
Action before 1930	524

xv.

	<u>Page</u>
Grants under Social Security Act	525
Recent bills to increase grants	526
Grants for maternal and infant care	527
Early appropriations	527
Grants under Social Security Act, 1935	528
Bills to increase funds	529
Crippled children programs	530
Present status	530
Proposed increases in funds	531
Grants for expansion of certain disease control	
programs	532
Venereal disease control	532
Tuberculosis control	533
Cancer control	534
General	535
Attitudes of farm groups with respect to federal	
grants to aid local public health services	535
Federal Action Relating to Construction of hospitals	
and Health Centers	536
Hospital construction aid in thirties	537
Public Works Administration	537
Works Progress Administration	537
Hospital construction bills	538
National Health Bill, 1939	538
Wagner-George-Fulmer bills	539
Hospital construction under Lanham Act, 1940 ...	540
Wagner-Murray-Dingell Bill of 1945	541
Hill-Burton bill of 1945	542
Other bills and resolutions relating to federal	
aid for local hospitals	543
Surplus medical equipment available from	
military services	544
Attitudes of various groups concerning federal aid	
to hospital surveys and construction	545
Professional groups	545
Farm groups	546
Labor groups	547
Pharmaceutical trade groups	547
Coordination of Government Action Relating to Medical	
and Allied Health Services	547
General proposals	547
Public opinion	548
Proposals of government agencies	549
Bills introduced	551

	<u>Page</u>
Government Sponsored Prepayment Plans for Medical and Allied Health Services	552
Farm Security Administration health service plans ..	552
Organization	553
Selection and payment of physicians	553
Benefits	554
Extent of F.S.A. program	556
Cooperation with other plans	557
Attitude of medical profession	558
Appraisal of F.S.A. health service plans	559
Experimental health service units established by U.S. Department of Agriculture	561
Purpose	561
Organization	562
Appraisal	562
Social Insurance for Health	564
Principle of social insurance for health	565
Social health insurance among states	566
Federal bills relating to social health insurance ..	569
Grants to aid state health insurance plans	569
Proposals for federal disability insurance	570
National health insurance: Wagner-Murray-Dingell bills	572
Benefits	572
Administration	576
Method of payment to physicians	576
Eligibility for services	576
Financial provisions for proposed services	577
Suggested methods of payment by farm people	578
Attitudes of various groups with respect to social insurance for health	580
Medical profession	580
Insurance companies	583
Farm groups	585
Labor groups	586
Public opinion	587
Legislation Proposed and/or Enacted in Iowa, Relating to Certain Medical and Allied Health Services, 1930- 1945	588
Bills permitting creation of non-profit associations providing health services	589
Bills relating to creation of county health units ..	590
Enabling act for county health units	590
Bill to require creation of county boards of health	591

	<u>Page</u>
Bills concerning provision of local clinics	593
Other bills relating to health services	593
Suggested legislation	594
Issues Involved in Social Action for Providing Medical and Allied Services on a Broad Basis, with Special Reference to Such Provision by Federal Government ...	595
Certain major issues	595
Freedom of consumers' choice	595
Personal relation between patient and physician .	596
Freedom of enterprise and initiative	598
Concentration of power	601
Effects of paternalism on citizens of nation	602
Medical standards and their maintenance	603
Costs	603
Administration	606
Consumers' sovereignty, the basic issue	606
Definition	606
Methods of attaining consumers' sovereignty	607
Summary and Conclusions	610

PART V. SUMMARY AND CONCLUSIONS

SUMMARY AND CONCLUSIONS	615
General Situation in Iowa	615
Status of health in Iowa	615
Comparison of Iowa with United States	615
Comparisons among areas within Iowa	616
Relative need for health services in rural and urban areas in Iowa	617
Adequacy of supply of certain health services in Iowa	617
Adequacy of supply of physicians in Iowa	617
Adequacy of supply of general hospital facil- ities in Iowa	618
Adequacy of public health services in Iowa	619
Need for more effective public health units	619
Need for better and cheaper means of paying for health services in Iowa	620
Methods of More Effectively Supplying Health Services ...	620
Need for experimentation	621
Local plans	621
Prepayment plans offered by non-profit associations .	622
Expansion of public health programs	623
Social insurance for health	623
Immediate Goals in Iowa	624
Suggested Areas for Research	626
SELECTED REFERENCES	629

LIST OF TABLES

	<u>Page</u>
Table 1. Crude death rates in Iowa, West North Central States and the United States	50
Table 2. Specific death rates by age, Iowa and the United States, 1930 and 1940	51
Table 3. Crude and adjusted death rates by size of locality, Iowa and the United States, 1940	53
Table 4. Specific death rates by locality and age of population, Iowa and the United States, 1940	57
Table 5. Infant death rate and stillbirth, for specific years	61
Table 6. Infant mortality rates in Iowa and the United States by size of locality and by place of residence of mothers, 1939-1942	64
Table 7. Maternal mortality rates, Iowa and United States, for specific years	70
Table 8. Maternal mortality rates by size of locality, Iowa and United States, 1940	72
Table 9. Specific death rates for selected causes, by size of locality, Iowa and United States, 1940	76
Table 10. Per cent of deaths from five leading causes in each age group, Iowa, 1942	78
Table 11. Annual frequency and disability rates of illness disabling for one week or longer, according to age among families canvassed in National Health Survey, 1935-1936	84
Table 12. Major causes of illness and deaths among the families in the survey by the Committee on Costs of Medical Care, 1928-31 (Annual rate per 1,000 persons canvassed)	86

	<u>Page</u>
Table 13. Annual rate of illness from specific causes as indicated by two national surveys	88
A. Incidence of specific conditions as indicated by the survey of the Committee on Costs of Medical Care, 1928-31	88
B. Incidence of disabling illness as indicated by the National Health Survey, 1935-36	89
Table 14. Morbidity rates for brucellosis by type of locality, Iowa, 1939-1943	91
Table 15. Ten most frequent causes for rejection from military service in three groups of men, World Wars I and II	95
Table 16. Crude birth rates for specified years in Iowa, the West North Central States and the United States .	102
Table 17. Specific birth rates by age of mothers and size of locality, Iowa and United States, 1940	105
Table 18. Population by type of locality, Iowa, 1930 and 1940	
A. Rural farm, rural non-farm, urban	116
B. Rural and urban municipalities	116
Table 19. Age distribution of population by type of locality, Iowa, 1930 and 1940	120
Table 20. Percentage of families having certain health expenditures and average number of certain services per family having expenditures, as shown by Consumers Purchases Study	136
Table 21. Certain medical care received by rural and urban residents, United States	137
Table 22. Percentage of live births by person in attendance, Iowa and United States, 1935 to 1942	141
Table 23. Percentage of live births by person in attendance and by type of locality, Iowa and United States, 1942	143
Table 24. Occupancy rate in general hospitals in state groups according to beds per 1,000 population. United States, 1940	149

xx.

	<u>Page</u>
Table 25. Percentage of births occurring in hospitals to residents of places under 10,000 and places over 10,000, Iowa and United States, 1937-1942..	151
Table 26. Medical care: average and percentage expenditures of farm, rural non-farm and urban families at selected income levels, United States, 1929-1936	159
Table 27. Refractions per 1,000 population per year at different income levels	162
Table 28. Per capita income and per capita expenditures for health by farm, rural non-farm, and urban families by family income levels, United States, 1935-1936	164
Table 29. Expenditures for health by farm, rural non-farm, and urban families, United States, 1935-1936 ...	166
Table 30. Expenditures for health by farm and rural non-farm families, United States, 1941	167
Table 31. Average health expenditures, net income, and cash living expenditures of selected farm families, Iowa, 1933-1944	170
Table 32. Average health expenditures, net income, and cash living expenditures of 108 selected Iowa farm families over five-year period, 1938-1943	171
Table 33. Distribution of annual health expenditures in selected Iowa farm families, 1938-1943	174
Table 34. Average annual expenditures for family living and for health of 108 selected farm families classified by five-year averages of annual net income, Iowa, 1938-1943	175
Table 35. Average and percentage expenditures of rural and urban families of three sizes for medical care at selected income levels, United States, 1935-36	181
Table 36. Use of general hospitals in states grouped according to per capita income and in Iowa, 1935-1937 .	185
Table 37. Number of persons per physician and place in array of states for selected states: 1923, 1931, 1934, 1938	206

	<u>Page</u>
Table 38. Number and percentage of counties in Iowa having standard population-physician ratios, 1938	214
Table 39. Number of physicians in localities of various sizes, Iowa, West North Central States, and United States, 1931	217
Table 40. Distribution of population and physicians by size of locality, Iowa, 1940	220
Table 41. Iowa specialists certified by American Boards of specialties, 1939	224
Table 42. Change in population per physician, by size of locality, Iowa, 1921, 1931, 1940	227
Table 43. Relative change in non-farm population and number of physicians in various localities, Iowa, 1921 to 1940	229
Table 44. Percentage of physicians in localities of various sizes, Iowa, 1921, 1931, 1940	230
Table 45. Age distribution of physicians by size of locality, Iowa, 1921, 1940	234
Table 46. Percentage of physicians receiving various incomes, United States, 1929	241
Table 47. Average and median net incomes of physicians by size of locality, United States, 1941	247
Table 48. Distribution of hospitals by ownership and control, United States, 1930, 1940	275
Table 49. Distribution of hospitals and hospital beds by type of service, United States, 1930, 1940	277
Table 50. Distribution of hospitals and hospital beds by type of service, Iowa, 1930, 1940	282
Table 51. Hospital beds per 1,000 population: standard: United States; Iowa, high, median and low ranking states; and Iowa, 1940	287
Table 52. Distribution of population and general hospital beds by size of locality, Iowa, 1940	290
Table 53. Distribution of hospitals by ownership and control, Iowa, 1930, 1940	297

	<u>Page</u>
Table 54. Special departments in registered hospitals, Iowa and United States, 1940	304
Table 55. Number of specific health activities carried on by states, 1940	326
Table 56. State agencies responsible for specific health activities, Iowa, 1940	328
Table 57. Boards of health and health officers in munic- ipalities in 90 counties of Iowa, 1938	334
Table 58. Health workers other than health officers employed by localities in 90 counties in Iowa, 1936	336
Table 59. Total and per capita expenditures for health activities and their sources, Iowa and United States, 1940	341
Table 60. Percentage distribution of expenditures for public health services by state agencies, Iowa and United States, 1940	347
Table 61. State expenditures for public health service, Iowa and United States, 1940	349
Table 62. Number and percentage distribution of full time single county and district public health units, United States, 1935 and 1941	353
Table 63. Appropriations to Iowa State Department of Health, 1929-1944	361
Table 64. Distribution of outbreaks of water-borne diseases by size of locality, United States, 1930-1938	366
Table 65. Public water supplies by size of municipality, Iowa, 1940	369
Table 66. Number and percentage of localities having public water supplies approved by State Department of Health, by size of locality, Iowa, 1932-1944	374

	<u>Page</u>
Table 67. Public sewage systems by size of locality, Iowa, 1932-1942	378
Table 68. Tuberculosis case finding surveys, Iowa, 1938, 1940, 1942	391
Table 69. Average expenditures per office and home call of physician and per day of hospitalization for certain farm and village families, United States, 1935-1936	418

LIST OF FIGURES

	<u>Page</u>
Figure 1. Crude and specific death rates, Iowa, 1930, 1940 Adjusted death rates, Iowa, 1940	49
Figure 2. Crude and age adjusted death rates by size of locality, Iowa and the United States, 1940	53
Figure 3. Specific death rates by size of locality and age of population, Iowa, 1940	56
Figure 4. Infant mortality by size of locality, Iowa and United States, 1940	63
Figure 5. Specific death rates for selected causes, by size of locality, Iowa and United States, 1940	75
Figure 6. Morbidity rates for brucellosis by type of locality, Iowa, 1939-1943	90
Figure 7. Percentage of population in various age groups, rural and urban, Iowa, 1940	119
Figure 8. States by place in array and by quartiles arranged from high to low by percentage of births attended by physicians, United States, 1942	142
Figure 9. Percentage of mothers visiting physicians before end of third month of pregnancy, compared with infant mortality rates, Iowa, 1932-1941	144
Figure 10. Distribution of annual health expenditure of 108 selected farm families with five-year average net incomes above and below \$5,000, Iowa, 1938-1943 ..	173
Figure 11. Relation between five-year average of expend- itures for health and net income of 108 selected farm families, Iowa, 1938-1943	176
Figure 12. Relation between five-year averages of expend- itures for health and cash living expenditures of 108 selected farm families, Iowa, 1938-1942 ..	177

	<u>Page</u>
Figure 13. Relation between five-year average of expenditures for clothing and net income of 108 selected farm families, Iowa, 1930-1943	178
Figure 14. Relation between five-year averages of expenditures for clothing and cash living expenditures of 108 selected farm families, Iowa, 1939-1943.	178-a
Figure 15. Population per physician, by counties, Iowa, 1938	213
Figure 16. Population per physician, by size of locality, Iowa, 1940	219
Figure 17. Distribution of specialists certified by American Boards of Specialties, Iowa, 1939	223
Figure 18. Age distribution of physicians by size of locality, Iowa, 1921, 1931	233
Figure 19. General hospital beds, by size of locality, Iowa, 1940	289
Figure 20. Distribution of general hospitals and general hospital beds, by size of locality and by county, Iowa, 1940	293
Figure 21. Counties with general or other hospitals, registered or non-registered, Iowa, 1939	296
Figure 22. Distribution of hospitals and hospital beds, by ownership and control, Iowa, 1930, 1940	300
Figure 23. County and district health units, Iowa, 1942...	331
Figure 24. Distribution of population by per capita public health expenditures of municipalities, in 90 counties, Iowa, 1936	344
Figure 25. Funds administered by Iowa State Department of Health, 1932-1944	360
Figure 26. Percentage of localities having public water supplies, by size of locality, Iowa, 1940	369

	<u>Page</u>
Figure 27. Percentage of localities having public water supplies approved by State Department of Health, Iowa, 1944	372
Figure 28. Percentage of localities having public water supplies approved by State Department of Health, by size of locality, Iowa, 1930-1944	373
Figure 29. Percentage of localities having public sewer systems approved by State Department of Health, by size of locality, Iowa, 1932-1940	377
Figure 30. Location of pneumonia typing stations, venereal disease clinics, and tumor clinics sponsored by State Department of Health, Iowa, 1940	390
Figure 31. Integrated hospital system	453
Figure 32. Distribution of Blue Cross hospitals and counties with farm membership in Blue Cross	489

1.

PART I. INTRODUCTION

INTRODUCTION

The problem of adequate medical and allied health services has come to the fore during recent years. The conviction that too many people do not receive the health service they need has grown. It is unknown just what services they need. Ideas concerning how they can best obtain the services are still nebulous.

This thesis examines some phases of the question of adequate medical and allied health services with particular application to rural areas in Iowa.

The first chapter presents (a) a statement of the problem, (b) reasons why the study is important at the present time, and (c) some reasons for a separate consideration of rural communities.

Statement of the Problem

The purpose of this study is to examine (1) the demand for certain medical and allied health services, (2) the present status of supply of such services and important factors affecting them, (3) the organization of such services, and (4) federal and state action from 1930 to 1944 relating to such services.

Special attention is given to non-relief rural families in Iowa. The term rural as used in this discussion follows the census definition. It includes residents of places less than 2,500 in population, both farm and non-

3.

farm. Rural non-farm residents are those living in villages of less than 2,500 in population or in the open country but not engaged in farming.

Although rural families use certain medical and allied health services in common with urban families, their situation has elements of uniqueness which call for separate consideration. The kinds of problems which these consumers face need to be explored. The status of health of rural people in Iowa is examined, together with other factors affecting their need and demand for medical and allied services.

Many types of services affect health. Only some of the most obvious can be considered here. The term health services is used broadly to include the science and art of preventing disease as well as curing it. It includes services both private and public furnished by physicians, dentists, nurses, technicians and such agencies as hospitals, clinics, and public health units. It includes also the organization and functional arrangements through which the technology of medicine operates. The scope of the present study is limited in the main to three major types of health services: physicians, general hospitals, and public health services. Many other services are touched upon briefly but attention is concentrated on the three enumerated. Dental care, nursing and nutrition are omitted except as they are included in a program involving one or more of the services listed. Only narrow segments of health education are considered.

Some attention is given to experiments in reorganization of medical and allied health services. The beginnings of grouping of health services in rural areas are explored, as are plans using the insurance principle.

Federal and state action both enacted and proposed are included, as well as the extent to which Iowa has participated in federal assistance for health services. Factors which influence such legislation or which are likely to influence future developments in the provision of health services are explored.

It has already been pointed out that health services for relief families are excluded. In addition workmen's compensation is excluded.

Reasons Why Study is Important at the Present Time

There are several reasons why a study of medical care and allied health services is important at this time. In general, they may be classified under three headings: (1) growing interest in the reorganization of medical care and allied health services, (2) impact of the war on interest in reorganization, and (3) post-war planning. These will be considered briefly.

Growing interest in reorganization of medical and allied health services

Recent decades have been periods of very rapid scientific and technical development in the field of medical and allied health services. Practice lags behind knowledge, however. Possible reasons for this gap include (1) the sheer speed with which scientists have made discoveries, (2) the lack of incentive or ability on the part of practicing physicians to keep abreast of new developments, (3) poor organization of medical care so that

knowledge is difficult to apply, (4) the great expense entailed in the new skills and devices so that few people can afford them with the existing organization, and (5) lack of knowledge or lack of appreciation on the part of people of the potential benefits which various health services might make to their welfare.

There is belief in many quarters that organization of medical and allied health services is a major factor causing practice to lag behind knowledge. Some lag between knowledge and practice is inevitable. Scientific discoveries must be verified and converted into a practical form, and practicing personnel must become acquainted with them. However, the present lag is held by many people to be larger than it need be. For example, some people feel that a different method of paying for services would be more effective than the present fee-for-service payment to individual physicians. Others suggest that local public health services, local hospitals, and physicians' offices may be combined in some way to make them further efficient and less costly.

For many years there has been a growing interest among the medical profession and among laymen as well with respect to reorganization of health services for both urban and rural communities. Opinion polls and surveys indicate this interest, as do various experiments in reorganization. There have been experiments in private clinics organized by physicians. There have been experiments in cooperative plans. There are also insurance plans worked out by the profession alone or in combination with lay groups; other plans involve provision of health services by the government. There is a rapidly growing body of literature on the subject.

Legislative changes have been proposed; for example, the National Health Bill was introduced by Senator Wagner in 1939, to expand the health titles of

the Social Security Act of 1935. The Wagner-Murray-Dingell Bill introduced in 1944 and reintroduced in 1945 would extend the benefits of the Social Security Act to more people, including farmers, and would increase federal grants in aid to states for public health work. Various bills to aid in construction of hospitals and health centers, e.g., the Hill-Burton Bill now before Congress, have been introduced. Further changes are being proposed, some expanding present services, others introducing new types of services.

All of these plans reflect the growing interest in change in the way in which medical care and certain allied health services are organized. Many of the proposals involve public policies and raise controversial issues. There is need for more public understanding. Present status of health services and factors affecting them need to be known. Proposals for changes need to be analyzed. In this way may be developed programs which will encourage practice to follow up science more closely in the field of medical and allied services.

Impact of war on interest in reorganization

The war has decreased the supply of physicians, nurses, and other personnel providing health services in many communities. At the same time it has brought an increased awareness of need. The increased tempo of production, both agricultural and industrial, has emphasized the need for greater stamina on the part of all workers, rural and urban. Absenteeism, both rural and urban, has grown in importance and efforts have been made to keep it at a minimum.

In addition the war highlighted the lag between advancements of knowledge in the field of health and the application of this knowledge to the prevention and cure of disease. Interest in preventive medicine increased greatly. Although morbidity and mortality rates in Iowa and in the United States as a whole have decreased greatly during the past half century, and particularly during the past two decades, they are considered by many to be greater than necessary. Many days are lost because of illness and injury. The large number of rejections among men in the Selective Service has alarmed many people.

Further, the war has affected ideas concerning the provision of medical and allied health services. Stories of miraculous cures and saving of lives through promptness of care, together with use of new medicines, raise hopes that shortly such services will be available to everyone. Patients, nurses, and hospital corpsmen, as well as physicians, have witnessed what the best kind of medical care can accomplish even under adverse conditions. The effectiveness of group action for those in military service has left many favorably disposed to group action.

Post-war planning

Trends from the war and the demonstration of an unrealized productive capacity have both been factors stimulating post-war plans. Among them are plans for more adequate health services.

President Roosevelt, in his third wartime message to Congress, recommended that an economic Bill of Rights be adopted as a basis for post-war

prosperity and security as well as an essential for winning the war. The Bill of Rights which he proposed included "the right to adequate medical care and the opportunity to achieve and enjoy good health," and "the right to adequate protection from the economic fears of old age, sickness, accident, and unemployment."¹

Secretary of Agriculture Claude R. Wickard, at a hearing of the House Special Committee on Postwar Economic Policy and Planning in 1944, stated:

Improved medical care...is among the services most urgently needed if rural living is to be brought on a par with urban living. Development along that line, to be anywhere near adequate, would require the services of thousands of doctors and the construction of hundreds of rural hospitals and dispensaries.²

In testimony to the same committee August 31, 1944 he recommended "grants-in-aid" and other forms of assistance in order to achieve the following:

- a. Establishment of more hospitals, health centers and sanitation facilities in rural areas.
- b. Due consideration to the needs of rural areas in the disposition of surplus medical and dental equipment now held for war purposes.
- c. Development of a department of health in every county, or in appropriate groups of counties, and a more equitable distribution of medical and dental personnel between rural and urban areas.
- d. Adequate medical care for migratory farm workers and other rural groups in special need of such assistance.
- e. Encouragement and assistance through a special financial program to rural health associations in developing voluntary medical and dental care and hospitalization insurance plans.³

¹Roosevelt, President Franklin D. Address to the Congress of the United States January 11, 1944. Congressional Record 90:57. 1944.

²Wimeographed release of the United States Department of Agriculture. (From Hearings on H. Res. 408). Spec. Comm.

³Ibid.

Professional and lay groups also are interested in post-war planning. The large scale survey of hospitals recently undertaken by the American Hospital Association aided by several philanthropic groups illustrate this interest. The programs of the Iowa Federated Women's Clubs and of the Women's Committee of the Iowa Farm Bureau Federation also illustrate this interest. The Conference on Medical Care and Health Services for Rural People held in Chicago in 1944, sponsored by the Farm Foundation and attended by representatives of farm, professional, and governmental groups, is also a reflection of this interest.

In 1944 several states had agricultural post-war planning committees which represented the thinking of farm people, land grant college leaders and others. The United States Department of Agriculture summary of these individual post-war planning reports concerning health and sanitation states:

One conclusion is overwhelmingly clear: that the articulate section of the rural population responsible for these reports are deeply concerned that positive action be taken in the post-war period to improve rural health services. These services are regarded as a right, rather than as a luxury dependent on individual purchasing power. Planning is regarded as urgently necessary and the cooperation of all levels of government and voluntary groups is looked to for getting the job done.¹

Some Reasons for Separate Consideration of Rural Communities

In general the level of medical and allied health services probably always has been lower in rural than in urban communities. There seems every

¹U.S. Dept. of Agriculture. Interbureau Committee on Post-war Plans. Memorandum to regional committees on post-war programs on review of preliminary state reports on post-war program. Report 5. Mimeo. 1945. p. 45.

reason to believe that the level could be higher in all communities. However, rural and urban communities are sufficiently different that a program suitable to the one might be inappropriate for the other. There are certain differences in need, in economic and social conditions, and in availability of services. It is likely also that in some respects health services for farm and rural non-farm families will need to be different.

Differences in need between rural and urban communities

It is of course obvious that many factors affecting need for medical and allied services in Iowa are the same regardless of whether the community is rural or urban. The need for dental care, for an appendectomy or for eye-glasses would not be likely to differ with the community. Nevertheless, despite general similarities in need for medical and allied health services between rural and urban communities, there are certain important differences. Differences in birth rate, age distribution of the population, occupation, and certain living conditions affect these needs.

Higher birth rates in rural areas indicate greater proportionate need for facilities for care in child birth and for care of infants and young children. A different distribution of age groups in rural and urban areas means differences in need for care of diseases peculiar to these age groups. It may mean different types of preventive measures.

Differences in need due to occupations are related chiefly to the possibility of accidents and to the type of strain in farm work at various seasons. Preventive measures will stress types of safety measures on farms different from those in urban areas. There are a few occupational hazards especially related to farming. There are, for example, a few diseases

transmitted from animals to man. Of these the most important is brucellosis. These diseases involve need for a preventive program in immunization of livestock and killing of known carriers.

Needs for medical care and allied health facilities may be different in farm communities from what they are in urban communities because of certain conditions of living. Traditionally the advantages of rural life from the standpoint of health are eulogized. It has been argued that there is freedom from the strain and confusion of city life. There is less noise, less smoke and pollution of air. There is a more restful, less hurried life. There is less living by schedule, more relaxation. Again, the rural family is closer to nature. Theoretically, it has a better opportunity for pure food and more nutritious food. However, closer observation shows that not all of these advantages are available or utilized if they are available. Farm life may be fatiguing and intense, especially during some parts of the year. There is much strain and worry because of uncertainty as to crops and insecurity arising from this. Conditions of farm living are not always conducive to good health.

Some apparent differences in need are in reality similarities. For example, it is often assumed that rural areas are safer from epidemics of infectious diseases because of the dispersion of the population. Closer examination reveals certain fallacies in this assumption. Although there may be less constant contact with other people in rural areas there still is a great deal of contact. There are frequent group meetings in rural areas whereby infections may be transmitted. There are community meetings at schools and churches. There are many social gatherings. It may be that epidemics in rural areas are no less real but only less spectacular than in

urban centers. The rural community has a similar problem to that of the city in this respect. Several factors contribute to the spread of infections in rural communities. Further, rural areas have in general poor quarantine measures. Patients are less well supervised. Frequently patients are not treated at the beginning of the infection because of the distance from the physician. Immunisation programs in rural areas frequently include but a small percentage of the total population so that more people are susceptible to infectious disease.

Environmental factors affect the need for some services. The question of supply of safe water is different in the rural community from what it is in the urban community. On the Iowa farm the supply of safe water may be less of a problem than it is in the small village. In the latter more protection is needed for individual sources; community provision of water is expensive because of the small number of families over which the cost of the plant would be distributed. Yet the health of the entire community may be endangered by one unsanitary source of water or disposal of sewage.

There may be differences in need for health facilities among farm and other rural families as well as between rural and urban. Farm and non-farm rural families share the medical and allied health services located within the rural communities or in neighboring towns and cities. Although in general distance to services is greater for farm than for rural non-farm families, it may be very important for the latter. Sanitation, environment and need for facilities differ between farm residents and those of a small village. Disposal of sewage in the former case, in all probability, affects but one family; in the latter it may affect the whole community. The use of shallow wells for

water supply may not be dangerous for a single farm family. For the village family, it may be under some conditions exceedingly dangerous.

Economic and social conditions which affect demand and supply of health services

More important, however, than differences in need are differences in the economic and social conditions which affect demand and supply. Density of population is one. Services involving a high overhead cost, so that low unit cost per service is possible only if many people are served, e.g. services of hospitals and certain diagnostic and hospital equipment, are usually not available to rural people under the types of organization and methods of payment that usually have prevailed. In some areas low per capita income makes provision of such services still more difficult. Thus, in some rural communities, either because of very low income or very low density of population or both of these conditions, many families are great distances from the services of a general physician or any kind of hospital services. Although isolation and low income in Iowa present less of a problem than they do in some states, nevertheless farm and also rural non-farm families in some areas of the state are many miles from facilities needed. Various kinds of arrangements are needed to provide local facilities and to supplement them with facilities in nearby larger centers.

Public health units have developed more slowly in rural areas. Here, too, lower density of population and per capita income have been important

even though funds from outside the community may be available. In addition there is usually less sense of need for the services provided by the public health service. Very likely this is due to the fact that the needs are less apparent or less spectacular than in cities, e.g., the need for a safe water supply.

Another difference needs to be noted. Farm families as well as most village families fall almost entirely in the entrepreneurial group. Their occupational status does not lend itself readily to group action important in health programs utilizing the group insurance principle.

Still another difference lies in the fact that small local units of government may be less able to provide certain facilities than are large units.

In any consideration of medical and allied health services for farm families in the United States, it is important to bear in mind that very important differences may exist among communities because of average income distribution, tenure status, density of population, and community organizations which have developed. A program for migratory farm workers, for example, might need to be quite different from that for a community composed of families of farm operators.

Lack of availability of services in rural communities

To an increasing extent physicians are locating in larger communities. Physicians' services in small towns are provided mainly by older doctors. Specialists, who have become increasingly important in medical practice, are available for the most part only in cities of considerable size. Some rural communities have found that only by community organization has it been possible to have adequate medical care and allied health services available.

GENERAL FRAMEWORK FOR THE STUDY

In exploring and evaluating the status of needs for medical and allied health services, the status of supply of certain services, and action of various professional, lay, and governmental organizations with respect to them, it is well to have in mind certain general aspects of the question. Among those which seem important are the following: (1) kinds of problems consumers face with respect to medical care and allied health service, (2) kinds and characteristics of services needed, (3) types of changes proposed and (4) agencies important in evolving new policies relating to health services. No attempt is made to analyze these factors exhaustively. Some of them are analyzed in various parts of later chapters. They are presented here as a framework into which may be fitted the chapters which follow.

Kinds of Problems Consumers Face With Respect to Medical Care and Allied Health Services

Consumers are faced with diverse problems with respect to medical care and allied facilities. These vary from the physical fact of varying need for the services and physical availability of the service to psychological problems of choice and relative preference among commodities. These need to be considered in any analysis of medical and allied services.

Uncertainty about expenses which will be incurred to provide services needed

Family and individual expenses for medical care and allied health services involve an element of risk due to the characteristics of need and uncertainty

due also to ignorance of what the charges will be.

One of the most important characteristics of the need for many types of medical and allied health services as contrasted with other necessities is its unpredictability. Incidence of illness is uneven both among families and in any one family from year to year. Although the amount of illness which will occur in a population of any considerable size can be predicted with fair accuracy, the individual family cannot foresee the experience which it will be likely to face. One family may have no illness or none of severity or long duration. Another may be afflicted catastrophically. Several studies have indicated that this unpredictability and unevenness of incidence of illness is a major problem.

A second characteristic of need is variability in degree of urgency. Urgency may be apparent urgency or may be real urgency, not always recognized. Defects in health vary in degree of need for treatment. Immediate care must be given, for example, with severe trauma, broken leg, or an acute attack of appendicitis. The urgency in these cases is readily apparent. Other types of health care may be postponed almost indefinitely. In fact, the need for the care may never be realized at all. Urgency here may be real but not apparent. Examples are dental treatment or services for tuberculosis. Because of increased income many families formerly unable to purchase health services have been seeking, since 1940, health services the need for which had been present for some time.

In addition to uncertainty concerning the need for medical and allied health services there is uncertainty as to what the charges will be. This is in part due to the fee-for-service system in which there is a sliding scale of fees according to the physician's estimate of the patient's ability

to pay. Judgment of this ability to pay may vary from time to time. In part this uncertainty is caused by the personal relationship between physician and patient in which the patient is reluctant to inquire about charges, the physician is prone to advise the patient to forget about that part for the time being, and both are embarrassed to discuss financial matters.

High cost

Dominant among discussions of the availability of medical and allied services for people as a whole is found the question of high cost. For the individual consumer or the family unit this problem is most important. Various suggestions have been made for (1) the lowering of the total cost for all families without a tinge of charity or paternalism, or (2) distributing the total cost in such a way that the cost for one family will not be prohibitive. Some experiments have been made in this direction.

Uncertainty about income if sickness should fall upon the breadwinner

In addition to uncertainty as to expenses which may be incurred because of disability there is the insecurity of family income if the disability should fall upon the breadwinner. This involves fear not only of inability to pay for needed medical and allied health services but also of inability to supply other basic necessities for the family. Many families who are independent as a rule, who can provide for their daily needs without help from outside the family, are unable to pay when deprived of their regular income for even a short time. When unforeseen and potentially high expenses are incurred at the same time, the situation may be calamitous.

Psychological problem concerning need

Frequently the consumer will ask himself, "Am I sick enough to go to the doctor? What will he think of me?" Or he may not want to go to the hospital except for a serious illness or emergency.

This attitude grows out of historical emphasis on curative services and often effectively prevents use of preventive services or even of treatment in early stages of disease. It is likely that this attitude is especially strong among the entrepreneurial farm group with its emphasis on independence and hardiness.

Incidence of some disability dependent upon other people

Although some disability may be prevented by the action of the individual or family, nevertheless other disability may be the result of the behavior of other people. Infectious diseases are of this type, as are some accidents. Against disability of this type the lone individual or family is relatively helpless.

Physical availability of service of satisfactory quality

In some geographic areas and within smaller segments of other areas consumers are faced with lack of facilities for medical care and allied health services. The facilities may be lacking entirely or those available may be inadequate as to quantity, geographic accessibility, or quality of service.

Lack of information

In order for needs for medical and allied service to be met, it is

necessary not only that the needs be recognized and that facilities for medical and allied services be available, but also that the availability, actual or potential, of specific services be recognized by the consumer.

This will involve several types of knowledge. In the first place, the kinds of services which may be provided must themselves be recognized, such as various types of specialties in medical private practice or group practice and the various types of preventive work which can be accomplished by public health work. Second, there is need for knowledge of what the specific charges will be and how they can be met. Third, some way to judge the quality of service offered is needed. Possibly surety of protection of the latter by the professional groups involved or by governmental agencies, such as the licensing of physicians and the guiding of public health service, is adequate. For the others there is need for information and evaluation on the part of the consumer.

Psychological problem of choice

Certain psychological elements come into the problem of choice of medical and allied services. These enter for example into the question of whether the service is worth the cost. This is in part tied up with knowledge concerning the need for the service and the quality of the service but is also in part psychological, tied up with how the individual reacts emotionally to the service.

There is also the question of relative preference for medical care and allied services and for other consumer goods and services. Into this enter the questions of (1) rationality in choice-making, (2) relative pressure of

health needs and other possibly more immediately pleasurable wants, (3) the degree of knowledge as to what is essential, (4) influence of advertising, and (5) elements of prestige and conspicuous consumption.

Kinds and Characteristics of Health Services Needed

Medical care and allied health services consist of various types and have several different characteristics. Fundamental to the adequacy of these services is the concept of the patient's needs as a whole. Fundamental also is the concept of organic unity among all types of health services, direct or indirect, community, or individual. Factors affecting one part affect another and in turn are affected by them.

For purposes of discussion in this section health services are classified in the following three ways: (1) personal or impersonal, (2) preventive or curative, and (3) group or individual.

Personal as compared with impersonal services

Many health services necessitate a direct relationship between the person giving and the person receiving the service. In these, however, a wide difference exists in the degree to which the relationship is looked upon as personal. A personal relationship with the surgeon may be less important than with the psychiatrist or the general practitioner. The services of the hospital are in general less personal than those of the physician. Within the hospital the services may shade from the very personal services of the nurse attending the patient to the impersonal services of the laboratory technician.

Still other health services are entirely impersonal. They reach people by way of commodities. The supply of good water, for example, is impersonal. Milk inspection, the activities of the Foods and Drug Administration, the provision of safe milk, the control of malaria by State Department of Health, the availability of standardized medicinal supplies in the corner drugstore are all examples of impersonal services. In general, public health services are of this nature.

The matter of personal relationship is stressed a good deal by those who feel that certain types of organization regiment the patient too much, so that he has, for example, no sense of freedom in choosing his physician and hence may come to feel that he cannot derive the benefit which comes from someone who truly knows him and has a personal interest in his health. This matter needs careful appraisal in any organization of health services.

Nevertheless it seems important to bear in mind that medical and certain allied health services are coming to be more fully based on objective science. Trust and confidence to a greater extent are related not to years of acquaintance but to assurance that diagnosis and treatment have been scientifically determined. Certainly with the development of various specialists and technicians to supplement the general practitioner medical and allied health services have tended in general to become more impersonal.

Many people believe that the advantages of the family physician pattern may be preserved without sacrifice of the benefits of specialization. They recognize the need for consideration of the patient as a psychosomatic whole. They see the general practitioner as one who knows and understands the patient

as a whole, who considers also many aspects of his health status and needs and who coordinates the services of various specialists. In their estimation there is need for both the general practitioner and the specialist. Their services are supplementary to each other.

Preventive as compared with curative services

A consideration of the two categories of preventive and curative services is useful because of new ideas among some groups concerning the role of various health agencies with respect to such services. It is also useful in exploring certain alleged shortcomings under the present system of providing the services.

Some health services are preventive in nature. The provision of safe water and milk supplies come in this category, also the wiping out of the breeding places of malarial mosquitoes, the control of sewage disposal, the inspection or control of sanitary conditions in restaurants. It is recognized that some diseases, such as diphtheria and smallpox, can be almost entirely eliminated through vaccination and immunization. Other diseases which are not as easily prevented can be partially controlled, as the control of scarlet fever through quarantine.

Further, certain habits of living are less likely than others to bring accident and disease. Habits of eating affect the extent of malnutrition and deficiency diseases. Worry and strain bring hypertension inducing many types of ailments.

Curative services include diagnosis, treatment of disease, and care of convalescents. Early diagnosis of some diseases may save lives, may lessen the severity and duration of illness, and may reduce the cost of the cure. There may be need for treatment by physician or nurse. There may be need

for the equipment of a physician's office or a hospital. Other cases may be adequately treated in the home, by family members and with equipment and supplies ordinarily found in the home.

Preventive and curative services shade into each other. Very often early diagnosis of disease is classed as preventive. True, it does prevent more serious illness from the disease, but it does not prevent the disease itself. The early treatment of cancer or of tuberculosis, for instance, while often preventing prolongation of illness, does not prevent the occurrence. The periodic health examination may also be on the borderline. It may bring to light conditions which if not corrected will lead to defects or be conducive to disease; it may, on the other hand, show the presence of early stages of disease, in which case it is diagnostic in nature.

Group as compared with individual services

Of the medical and allied health services discussed above some are group services, some are individual. Group action involves areas recognized as affecting all of the group. Some may be community activities on the local level, county, state or federal. Public health work comes in this category. Services insuring safe water and safe food, for example, are group services. Quarantine to prevent the spread of contagious diseases also is a group service. On the other hand, the service may be individual. In general, the services of a private physician or nurse lie in this classification.

Not only the supply of services but the demand for them may be either group or individual. It is often difficult in considering demand for medical and allied health services to distinguish between group demand and individual

demand. Group demand may be formal or informal. Formal group demand is easily distinguished. There may be formal demand by a group for the services, as when a health department seeks to add another physician to the staff, when a school nurse is employed or when a county farm association joins the Blue Cross. Formal demand may take the form of state legislation, such as that requiring vaccination of all school children or health examinations for certain types of work. Again, the demand of a consumer cooperative for the services of a physician illustrates formal demand.

Informal demand blends imperceptibly into individual demand. The difference is one of degree. In a small community there may be a few scattered individuals who would use a given service if it were available but there are too few for their demand to become effective. On the other hand, there may be enough individual demand for the service to result in informal, implicit demand. A physician may sense, for instance, the potential demand in a community, establish an office on the basis of this hunch, and find adequate demand for service.

There is evidence of increased formal group demand in order to facilitate making aggregate individual demand effective. Some experimental groups have been established by the consumer group as well as by producer groups who have recognized potential demand. These are discussed in a later chapter .

Mandatory and voluntary services

Group services fall into two broad categories (1) services involving regulation and compulsion and (2) services not involving compulsion. In either case the agencies may be state or voluntary agencies.

Early action by the State concerning medical care and allied health services developed in the field of regulation and compulsion. Its purpose was to protect the public in general from conditions of behavior or conditions of environment dangerous to the group.

State regulatory and compulsory measures may include the following very diverse types: (1) requiring minimum sanitary standards, such as standards concerning water supply, sewage disposal, drinking facilities and towels in public places, handling of food; (2) requiring quarantine or treatment of those with infectious disease; (3) prohibiting sale of certain commodities except under certain conditions, as in the case of certain habit-forming drugs; (4) requiring labeling with certain minimum of information and prohibiting false statements in the sale of products; (5) requiring minimum standards of construction of residences and public buildings and of various appliances such as those involving a fire hazard or those for which special health claims are made; (6) requiring accident compensation under certain condition; (7) requiring minimum standards of training for those who diagnose health conditions of individuals and prescribe for or in other way treat ailments, e.g., physicians, nurses, and technicians. Some of these affect urban and rural families equally, e.g., the licensing of physicians. Others at present affect urban families more than rural families. For example, there may not be restrictions concerning the water supply and sewage disposal for some villages or for some open-country public buildings.

Not all regulatory services of this general types are mandatory. For example, certification of some specialists by the American Medical Association requires adherence to certain standards for training although a physician may

be a self-styled specialist without these requisites. Likewise, listing of approved hospitals by the American Hospital Association and the American College of Surgeons necessitates the meeting of minimum standards established by these organizations. However, since it is to the advantage of the individual specialist or hospital to have the certification or registration by a professional organization such requirements exercise a great deal of pressure in the direction of regulation.

Much of the newer development in government action is in areas not involving compulsion. Public health work is of this nature. Educational services are not compulsory, nor is the provision of some direct services, as in the dental examinations for some group and tuberculosis case-finding surveys in many counties. The provision of county public health nursing service falls in this category.

Similar types of group service may be provided or sponsored by private rather than public agencies. In addition, various forms of prepayment plans based on the insurance principle provide group service, e.g., the Blue Cross plan of hospitalization insurance.

Types of Changes Proposed

Changes in the organization of medical care and allied services felt by various groups to be needed are of several general types. In the following classification, the types cut across one another to some extent. For purposes of discussion, however, it is helpful to separate types even though the lines between them may be somewhat indefinite.

More group practice centered about hospitals and health centers

Increased group practice centered about hospitals and health centers would make available expensive diagnostic and therapeutic devices in more communities. The cost per service rendered in many instances could be reduced. Furthermore, many people hold that such centers would tend to bring experienced physicians in contact with new developments more readily than occurs when they occupy separate, isolated offices. In addition, the centers would provide groups in which young, inexperienced physicians could further mature and specialists could develop.

Expansion of public health service

Many people favor an expansion of public health services, both in number of communities reached and in type of services provided, together with a closer integration of all health activities within communities.

Increased use of insurance principle

There is need for the reduction of uncertainties among families with regard to their ability to pay for medical and allied services. This can be accomplished by means of a prepayment plan in which the total cost of health services for the group is spread equally among all families in the group. Such a system is of value not only to consumers but also to producers. If the probable incidence of illnesses is known for the group making prepayment, for example, physicians will know in advance both their incomes and the amount of service they will be called upon to render. It is possible through

application of the insurance principle to reduce the risk for both patients and physicians.

Fostering of conditions conducive to the development of preventive medicine

Emphasis on preventive medicine is becoming increasingly important. Many factors combine to favor such development.

Of great importance is adequate family and community income which will attract personnel and make the supply of medical and allied services available and which also will permit families to attend to health matters promptly instead of postponing all but emergency care because of the income pressure. This opens up a large area of economic problems beyond the scope of this study.

Prepayment plans are considered by many to be a major factor motivating both patients and physicians to achieve more preventive care. Individuals and families who have available various medical services already paid for are much more likely to see the doctor when symptoms of some health defect are first apparent. Expanded public health work as discussed above is of course exceedingly important in the advancement of preventive work in several ways: (1) provision of direct services, (2) provision of an environment more free from conditions causing morbidity, and (3) education. Education is a factor of great significance. The recognition of the importance of preventive measures, recognition of conditions or symptoms of conditions needing care, knowledge of availability of services, and recognition of the value of certain public health facilities all enter into the picture.

Increased subsidy by various government units to families and groups

Among proposals and experiments for reorganizing the provision of medical and allied care is found increased subsidy by government agencies to ensure that facilities are available where needed, and available to all families. Such subsidy may be given both through grants to aid expanded public health services and other means such as (1) provision of credit to individual families needing medical or allied services, (2) loans to groups organized for such purposes as establishing cooperatives for health services or organization for a community health center, (3) direct grants to such groups and (4) grants to aid health insurance programs, either state or national. Not only have various plans been proposed but a few experiments have been made.

Participation by lay groups along with professional groups in developing and directing medical and allied services

In order to establish a balance between various goals and to provide understanding among the groups involved, many people urge increased participation by lay groups with professional groups in developing and directing the organization of medical and allied services. Although it is generally agreed that physicians and other trained personnel should have jurisdiction over the content of medical care and allied health services and standards for them, many are of the opinion that participation of lay groups would be of value in the organization of payment for the services.

These types of changes indicate to some extent the trend in organization of medical and allied services. They are proposals for improving the distribution of health services which need to be evaluated. In the present

discussion of experiments and developments in these directions an attempt is made to evaluate them to some extent.

Agencies Important in Evolving New Policy

Although most people support the general objectives of various programs for medical care and allied health services many differences of opinion exist as to the need for change and the best means to use to obtain improvement. Group practice, expanded insurance and increased subsidy may be accepted as desirable to some extent, but disagreement may arise as to means of instituting or developing them.

Many agencies are playing a part in or against the development of programs of medical care and allied health services. Some are shaping new policy, from the standpoint of developing changes; others are working for keeping the status quo, from the standpoint of opposing changes. Only a few will be considered here. They are listed under six headings: (1) federal government, (2) professional organizations, (3) private foundations, (4) lay groups, (5) trade groups, and (6) groups representing government, professional and lay organizations.

Federal government

Among federal agencies concerned with medical care and allied health services are (1) the United States Public Health Service, (2) the United States Department of Agriculture, and (3) the Children's Bureau of the United States Department of Labor.¹

¹The now defunct National Resources Planning Board included medical care and allied health services in its general consideration. It is probable that its reports have had relatively little effect in this particular area.

Chief among these agencies is the United States Public Health Service, under whose jurisdiction have been placed most of the federal action agencies having to do with medical and allied health services. Through its research, educational programs, allocation of federal grants, and cooperative action with state departments of health it is in position to influence the development of policy.

The United States Department of Agriculture through its educational extension program may influence such policy. The Farm Security Administration medical care program, under the United States Department of Agriculture, may have some effect on the growth of group practice. So may the Children's Bureau of the Department of Labor through its control of funds for public health services (under such acts as the Social Security Act).

Professional organizations

The attitudes of various professional organizations are of significance in the evolving of policy concerning medical care and allied services. Among these are the American Medical Association, American Hospital Association, American Dental Association, American Nursing Association, National Organization of Public Health Nurses, American Public Health Association. In general these organizations take the same stand in regard to government programs related to medical and allied services.

The attitude of the medical profession is of outstanding importance in this regard. Officially it has stressed the great importance of retaining the fee-for-service system of payment and free choice of physician. Fee-

for-services is incompatible with prepayment and in some measure with the development of group practice about a health center. There has been over a period of time some change in the official stand of the American Medical Association in regard to insurance plans. However, the association opposes government insurance plans. It favors plans sponsored by state medical societies.

There has been some disagreement within the profession as to attitudes on the organization of medical care and allied services. Some groups have dissented from the American Medical Association stand with regard to government aid to insurance plans. Among dissenting groups are the Committee for the Improvement of Medical Care and the Physicians' Forum. Both of these Committees have favored programs of federal aid in health insurance plans, either through federal grants-in-aid to individual state insurance or through national health insurance. However, there is also the National Physicians' Committee for the Extension of Medical Care which is opposed to such programs.

Private foundations

The evolving of new policy may be affected by various philanthropic organizations. Several philanthropic organizations have encouraged group action for the provision of medical care and allied services. These include:

1. The Farn Foundation, which has sponsored group discussions among consumers as to what their needs for medical and allied health services are, and how these can best be obtained and which has worked experimentally with the Extension Service in Nebraska and Ohio.
2. The W.K. Kellogg Foundation, which has provided experiment clinics and community health centers in various communities in Southern Michigan.

3. Bingham Associates of Boston, which has sponsored a program of coordination of small community hospitals with a larger central hospital in Maine.
4. The Milbank Memorial Fund, which has sponsored demonstration projects for public health units in rural areas and also has provided funds for surveys.
5. The Commonwealth Fund, which has sponsored similar demonstrations of public health units.
6. The Rockefeller Foundation, which has given grants to aid certain types of public health work in several states.
7. The Duke Endowment, which has done similar work in North Carolina in sponsoring demonstrations of public health units.

These foundations are of great importance in providing experiments in group action upon the results of which future action can be based. They also provide education and stimulus to interest in the general area of the provision of medical care and allied services.

Lay groups

Lay groups of consumers are potentially important in the development of policy. These include both farm groups and labor groups.

Chief among the former are the Farm Bureau Federation, Farmers' Union, and the National Grange. In general, farm groups have given more active support to hospitalization plans and to certain public health programs than to comprehensive federal or state action concerning medical care programs. The Farm Bureau Federation, although much interested in the problem of medical care and allied health services, has been fairly conservative. The Farmers' Union has been more extreme in its platform, going so far as to endorse government provision of basic health services in the same way that minimum education is now provided.

Labor groups in general have favored federal insurance plans. Both the American Federation of Labor and the Congress of Industrial Organization are important in shaping policies.

Trade groups

Also instrumental in the evolving of new policy concerning medical and allied care may be various trade groups. The American Pharmaceutical Association and the National Association of Retail Druggists, for example, are much interested in proposals which might affect pharmaceutical products. Again, insurance companies also are concerned with various proposals for non-profit prepayment plans. Some, but not all, companies oppose such plans.

Groups representing government, professional, and lay organizations

There is evidence of groups representing various interests meeting together in developing programs for making adequate medical and allied services available to all families.

An early example of this type of group is the National Health Conference called by the President in 1938 to consider the report of the Interdepartmental Committee to Coordinate Health Activities. At this conference were representatives of government agencies, professional associations, farm and trade groups, research and university workers. A second example is the conference in Chicago in 1944 sponsored by the Farm Foundation, at which also there were representatives of these groups.

The activities of these agencies are discussed in several of the chapters which follow. At this time it is important to remember that the policies

made will determine largely which changes will be tried. In addition, the way in which policies are made will determine largely the groups which are effective in bringing about changes.

It must be remembered, too, that these policies refer to functional arrangements for distributing medical and allied services, i.e., to the methods of supplying them and the methods of paying for them. The medical content, it will be agreed, should be under the jurisdiction of the profession. It is apparent that any change which will improve the distribution of medical and allied services without impeding their scientific advancement and without producing undesirable psychological effects must be developed by all involved groups working together. Pressure groups working from a selfish motive may be influential but will hinder real progress. It is likely that farm groups will have much influence in future developments of ways to distribute health services more adequately.

**PART II. DEMAND FOR MEDICAL AND
ALLIED HEALTH SERVICES**

The concept of demand as commonly used in economic literature is the quantity of goods consumers are willing to purchase at various prices. Measurement of demand for medical and allied services in these terms is very difficult to make. This thesis is concerned mainly with certain evidence of demand and important factors affecting demand.

In exploring the question of demand for medical and allied health services it is well to look into indications of the extent of need for them and the extent of use of services available. It is also well to investigate factors affecting use of services. Some of these are economic, some relate to social environment and some as psychological. Needless to say, these factors are interrelated.

In Part I certain characteristics of demand were considered briefly: its unpredictability, unevenness of incidence, and variation in degree of urgency. These give rise to important problems. Part III on supply deals with facilities available. This supply is, of course, a response to consumer demand.

In the first of the two chapters which follow is discussed the extent of need for medical and allied health services with special reference to rural Iowa, as reflected by the status of health of the population and by the birth rate. The second chapter deals with the utilization of available medical and allied health services and with factors such as income which affect demand.

STATUS OF HEALTH AND BIRTH RATE
WITH SPECIAL REFERENCE TO RURAL IOWA

A systematic study of medical care and allied health services calls for the presentation of facts concerning the extent of need for these services. Important among these facts are data concerning the health status of the population, the mortality rates, the birth rate and factors affecting them. Some indications of the extent of relative need for health services in Iowa can be found in data on population, births, deaths, sickness and accidents.

Surveys to determine the health status of a cross-section of communities either rural or urban have still to be made. Changes in health status and differences among communities must for the most part be inferred from mortality and morbidity rates. In this section data on mortality and morbidity rates and on prevalence of physical defects will be presented. It is necessary at the outset to consider some of the problems of measurement involved in these rates.

Vital statistics published by the United States Bureau of the Census are the most important source of information on both mortality and morbidity. However, additional information especially on morbidity including physical defects comes from other sources. There have been surveys of health conditions of various groups of the population. Some of the more important of these will be included.

In this chapter five major topics are to be considered: (1) some general aspects of the measurement of health status, (2) mortality rates, (3) morbidity rates, (4) health defects, and (5) birth rates. All of these rates are to be considered with special reference to rural communities in Iowa.

Some General Aspects of Measurement of Health Status by Use of Mortality and Morbidity Rates¹

In time-to-time and place-to-place comparisons, mortality and morbidity rates of the nation, states, or local communities as usually published must

¹The Health Organization of the League of Nations has since 1935 been developing health indices "intended to provide an assessment of the state of health of a community in all its various aspects and to make information available as to the effect upon it of geographical, social, and economic conditions and of public health measures." (Report on the work of the Health Organization, League of Nations. Bul. of Health Organization 8:41. 1939). The first part of the indices, entitled "Indices of Vitality and Health" includes data on: population, natality, stillbirths, infant and maternal mortality, general mortality and causes of death, morbidity, invalidity, insanity and mental defects, alcoholism and drug habit, accidents, suicides and homicides, and examinations of physical fitness. (Stauman, K., and Falk, I.S. Health indices; a study of objective indices of health in relation to environment and sanitation. Bul. of Health Organization 5:917. 1936. Also, Skeleton standard report on the state of health of the population and factors affecting it. Ibid., 8:63-86. 1939).

No attempt was made to develop from these indices a single index. No system of standards or scores was set up because such a system could not be applied to countries in which conditions and administrative practice differ widely.

Three experimental applications of the indices have been made. The first was in New Haven, Connecticut in 1936. The second, in 1937, applied to a rural area in Hungary. The third in 1938 was for the city of Brussels. (Stauman, K., Health indices for the city of New Haven, Connecticut. Ibid., 5:997-1081. 1939. Stauman, K., Health indices in an experimental study of a rural district of Hungary. Ibid., 6:766-821. 1937. Stauman, K. Health indices established in an experimental study of the city of Brussels. Ibid., 7:122-167. 1938.)

be interpreted with care. Age and to a lesser extent sex of the population affect them. There are important differences between Iowa farm, rural non-farm, and urban populations in these respects. Also, age composition of the population in recent decades has changed considerably. For many purposes crude mortality and morbidity rates need to be adjusted to eliminate the effect of these population differences.

Mortality rates

Need for adjustment of crude rates. In making comparisons between mortality rates of different places or times, specific mortality rates, e.g., mortality rates by age groups, are more valuable than crude rates. In one community a high crude death rate may be due to the community's having a large proportion of people over 65 years of age. Another community may have the same crude death rate, have relatively few people over 65 years of age, but have a high mortality rate among children under 15 years of age. The crude death rate conceals these differences. On the other hand, an apparent difference in mortality rates between two communities may be in reality due to differences in age distribution of their populations. Given identical age distribution of population, the two communities might have the same total death rate. Age-specific rates eliminate errors due to differences in age composition of the two populations.

The Committee on Forms and Methods of Statistical Practice of the American Public Health Association in its report in 1933 stated:

Due to the pronounced differences in age composition of populations from time to time and from place to place it is imperative that some form of compensation be incorporated more generally in the United States as a standard procedure into the calculation of mortality (and perhaps morbidity) rates. This procedure is especially important when time or place comparisons are to be made.

Because of the increasing proportion of elders in the population, some death rates are increasing, or seem likely to increase in the very near future, although most age-specific death rates will doubtless continue to decline. Crude rates may, therefore, be even more misleading in the future than at present.

Compensation for age is particularly important for the old age diseases. The increase in mortality from these diseases is greatly exaggerated by the crude rates.¹

In 1940 the Committee recommended that age-specific rates be used in place of crude death rates whenever possible even if very broad age groups be used.²

The way in which crude mortality rates hide changes which have occurred in rates for specific age groups is illustrated in Figure 1, page 49, which shows the crude and age-specific mortality rates in Iowa in 1930 and 1940. According to the crude rates, scarcely any change occurred. However, in all age groups the specific rates declined during the decade. The figure also shows the age-adjusted rate, i.e., the total mortality rate which would have occurred in 1940 had the age structure of the population been the same as the age structure of the population in 1930. The age-adjusted rate showed a decrease from that of 1930.

¹American Public Health Association. Committee on Forms and Methods of Statistical Practice. Age adjustment of death rates. Amer. Public Health Yearbook, 1937/38. 1938. p. 172-173.

²Ibid., 1939/1940. 1940. p. 123.

Classification of mortality data on the basis of place of occurrence or place of residence brings out important differences between the two methods. Since hospitals tend to be concentrated in large cities any rural-urban comparison using mortality rates based on place of occurrence can not be used to indicate the relative health of the people in rural and urban communities. For example, in the city of Des Moines in 1940 the death rate on the basis of place of occurrence was 11.7 per 1000 population, whereas on the basis of place of residence it was 10.2.¹

Specific mortality rates according to residence have been published by the United States Bureau of the Census only since 1939.² Hence comparisons of mortality in rural and urban communities are difficult to make for period prior to 1939, for which data are readily available only on the basis of place of occurrence.

Precautions in interpretation of specific morbidity rates. Comparisons using mortality rates by place of residence are still not free from distortion. Mobility is high. The death of a resident in a specified community may occur because of the health facilities in another community in which he formerly lived. Insofar as farm people whose health becomes poor move to urban communities such mobility may be a factor giving an upward bias to urban mortality rates and a downward bias to rural mortality rates as measures of relative health conditions. A further error

¹U.S. Bur. of Census. Vital statistics of the United States, 1940. Part II. Washington, U.S. Govt. Print. Off. 1943. p.9.

²U.S. Bur. of Census. Vital statistics rate in the United States, 1900-1940. Washington, U.S. Govt. Print. Off. 1943. p. 15. Simple tabulations of total deaths for cities and counties were published for the years 1914 and 1918-1930. Somewhat more detailed tabulations made for both births and deaths were published in 1935. Starting with 1939 more extensive tabulations by age of mother, cause of death, age of mother and other items were made.

creeps into comparisons of data on a place of residence basis because of the difficulty of allocating data according to residence. As between states, for example, legal definitions of residence vary.

Absence of farm data precludes comparisons of health status between farm and rural non-farm families. At present there is no way of differentiating between the two groups in order to study health status as reflected by vital statistics. So far vital statistics combined data for farm and non-farm rural groups and hence provide no separate data for farm groups.

In addition to adjustments for age, sex, and place of residence, it would be helpful in making comparisons between rural and urban areas, or among regions over time, to have information concerning specific causes of death. However, so many difficulties arise from the standpoint of classification that validity of time-to-time or place-to-place comparisons must be questioned. For this reason little space in this discussion will be given to mortality data bearing on specific causes of deaths. In using such data it must be remembered that changes in major causes of death may reflect change in structure of population rather than changed significance of specific causes. Apparent changes may be due in reality to: (1) improved knowledge of disease and skill in diagnosis, (2) changes in definitions of disease, and (3) changes in completeness of registration.¹

¹There are still many methodological problems involved in improving mortality rates. Perhaps the greatest difficulty lies in classification and definition. There has been since 1893 an International List of Causes of Death, sponsored by the International Statistical Institute. This list is used by the United States Bureau of the Census in the recording of vital statistics. There have been five revisions, the last one in 1938, for the purpose of keeping terminology and grouping in line with medical progress. Each revision has involved the introduc-

Morbidity rates and health defects

Adequacy of data on morbidity and health defects and on mortality.

Data on morbidity and health defects are much less adequate than those for mortality. They are much more difficult to obtain. In the first place there is no standard list for reporting cases comparable to the International List of Causes for Death.¹ Such a list would of necessity be somewhat

(Footnote continued)

tion of new terms, the elimination of some old ones and the shifting of others into new groupings.

Even though a standard list is used there are difficulties in definition. Among the states there is, for example, variation in the definition of stillbirth. Even with standard definitions, which in themselves present the problem of arbitrary terms, there is the difficulty of accurate diagnosis of a particular condition. Medical phenomena are involved and inter-related. When several causes of death are present the selection of the primary cause may be very difficult. Physicians vary in interests and degree of training and skill. In addition there is from time to time popular or professional interest in some disease which may lead to a distortion of mortality statistics due to change in emphasis among members of the medical profession.

Unknown causes of death may cause errors in comparisons over time in one place or at one time as between places. For example, if certain causes are not recognized at one period and are recognized later, the statistics may show an increase in deaths from these causes which is not a true increase. Again differences between regions may be inaccurate. For example, in 1940, 20 per cent of the causes of death in New Mexico were listed as unknown, whereas only 0.01 per cent were so listed in Rhode Island. Part of this difference no doubt was due to isolation of a large part of the population in New Mexico with its resultant lack of attendance by physicians. Omissions in recording give another distortion which is likely to be a source of some apparent rural-urban difference. It must be recognized that grouping of data involves some loss of information and some concealing of the characteristics of disease or of population which may influence interpretation of the data.

Another error creeps into comparisons over time in using the data for the United States. Until 1933 not all of the States were included in the registration states for which the Bureau of the Census published statistics on deaths. Comparability of the death rate in the United States over time was not attained until after 1933. From 1900 to 1933 the data for the death registration states do not refer to the same states. (Footnote based largely on U.S. Bur. of Census, Vital Statistics Rates in the United States, 1900-1940. p. 5-25.)

¹See footnote p. 42.

arbitrary in the types of ailments included and their definitions. Nor are there standard definitions for all diseases. In determining total mortality rates difficulty arises not only in the definition and classification of ailments to be included but also in the collection of the necessary data. It is likely that there are many omissions and inaccuracies in reporting. Many cases of illness, for example, are unattended by physicians.

Sources of data and their limitations. The principal sources of data on illnesses are the reports of physicians and local health officers. From these state departments of health compile state reports and those from separate states are compiled to provide national data. In two instances a random sample of the entire population has been canvassed by trained interviewers in order to secure information. The Committee on the Costs of Medical Care made such a survey in 1928-1931. The National Health Survey in 1935-1936 was also of this type. Smaller surveys of selected groups have been made using the method of canvassing or using the questionnaire method. These have been for the most part in urban areas, however.

An adequate measure of health defects or the incidence of all types of illness in a community can be secured only through physical examination of the population. If examinations are made of a sample of the population it should be a random sample. Thus far no such examination has been made.¹ However, some data have been secured by means of physical examination of selected groups; for example, school children, clients of the Farm Security Administration, persons entering the armed services, and others.

¹In one U.S. Census, 1880, the number of people ill on the day the enumerator visited the home was recorded. This gave some indication of the extent of illness but not of the causes or severity.

The analysis of data collected for other purposes provides a fourth source of data reflecting health status to some extent. Hospital data are of some value in this respect. Causes of sickness and accident for which payments have been made by health and accident insurance companies throw some light on the problems of health status. The latter source is omitted from consideration in the present study, however.

Because of various types of bias in samples and the limitations of the physical examinations used to determine health status or the types of information sought, data from these sources are still inadequate in revealing health status of various groups of the population.

It is not surprising that morbidity data compiled from reports of physicians and local health officers are more nearly complete for some illnesses than for others. The occurrence of some types of illness, for example colds and dysentery, is to be only a limited extent known to doctors. In addition, doctors are asked to report to county or state authorities only the incidence of certain diseases. In Iowa, for instance, 31 diseases are reportable to the State Department of Health. These data do give information concerning infectious diseases which, of necessity, have been in the past the major concern of public health authorities and which give the greatest need for immediate public action toward control. They do not, however, give information concerning the prevalence among the population of the conditions causing the greatest number of deaths indicated in state mortality reports or conditions causing the largest number of days of disability as reported in two nation-wide surveys.

Hospital data throw some light on the type of illness for which people are hospitalized as well as the relative age and sex composition of the group hospitalized, and the proportion of the population hospitalized. Apart from those in public wards the groups of people to which such data pertain are selected, however, on the basis of ability to pay rather than urgency of need. In addition, in many cases only those seriously ill are likely to be hospitalized.

A study of the population of a rural hospital has, for example, been made. This study was a statistical analysis of approximately 13,000 consecutive hospital discharges in the Mary Imogene Bassett Hospital, Otsego County, New York, covering the years 1928 to 1937, inclusive.¹ However, it includes only hospital patients in one rural county hospital and is not representative of the total population of the county. Only about two per cent of the population of the area visited the hospital during the decade, whereas the two national surveys involving a house-to-house canvass have shown that the incidence of disabling illnesses during one year for the country as a whole is approximately 60 per cent.² Of course, not all disabling illnesses need hospitalization.

Ways in which extent of morbidity and health defects are expressed.

There are several ways in which the extent and severity of health defects or sickness in a population can be expressed. They include (1) the rate or number of cases of a specific illness occurring per year per 1,000

¹Crosby, Edwin L. Rural hospital morbidity: statistical analysis of 13,014 consecutive hospital discharges in Otsego County, New York. In Conference on Rural Medicine, Cooperstown, New York, 1938. Rural Medicine: proceedings. Springfield, Ill., Charles C. Thomas. 1939. p. 26-41.

²See p. 84.

persons, (2) annual number of days per year of inability to carry on usual activities per person or per 1,000 persons, (3) number of days per year of confinement to bed per person or per 1,000 persons, (4) annual days of disability or days confined to bed per case of illness, and (5) the number of cases of illness or defects found at a given point of time per 1,000 persons. All of these are used in this thesis to the extent that data are available.

Mortality Rates with Special Reference to Rural Iowa

It has been pointed out that certain mortality rates are more useful than others in indicating health status. In this section are presented data on (1) general mortality rates, (2) infant mortality rates, (3) maternal mortality rates, and (4) mortality rates by principal causes of death. Unless otherwise specified, all data presented in this thesis are by place of residence rather than place of occurrence. Special reference will be made to rural communities in Iowa.

General mortality rates in Iowa

With respect to general mortality rates in Iowa the following aspects are of interest: (1) trend in mortality rates, (2) mortality rates by age group and by size of community; (3) mortality rates in Iowa localities compared with the United States, and (4) some reasons for higher mortality rates in places from 2,500 to 10,000 in population. Although it has important limitations the mortality rate often has been used as an indication of the health status of the people. Thompson and Whelpton state that:

Perhaps the best simple measure of improvement in welfare is the decline of the death rate, since it is in a real sense

the algebraic sum of many factors affecting the life of the people. It would not be maintained for an instant, however, that the level of the death rate is a satisfactory measure of welfare, or that at times it may not be actually misleading, but only that as a rule a decline in the death rate is a fairly good proof that the masses of the people are living better than they have been.¹

Trends in mortality rates. The crude mortality rate in Iowa has been fairly stable during the past two decades, hovering about the mark of 10.4 deaths per 1,000 estimated population. It has followed fairly closely the crude mortality rate for the United States as a whole.² As shown in Table 1, it has been almost parallel with the rate for the West North Central States.

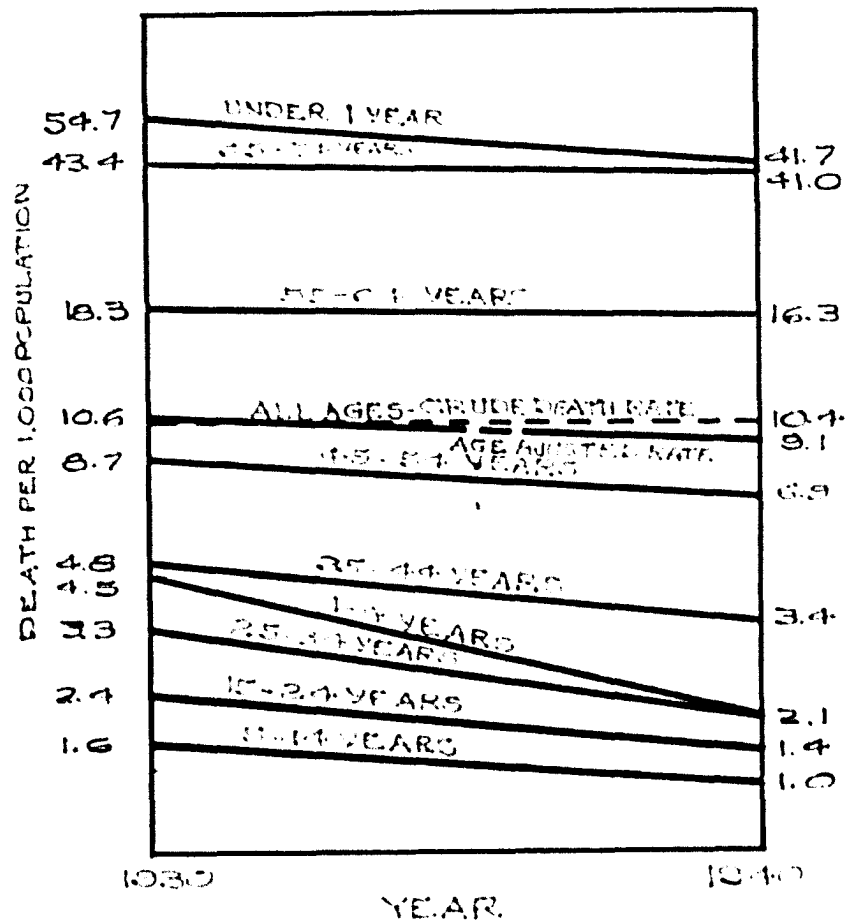
The age-adjusted rate for Iowa for 1940, calculated with the population of Iowa in 1930 as the standard, shows a decrease from 10.6 deaths per 1,000 estimated population to 9.1.³ The age-specific rate in Iowa decreased from 1930 to 1940 for every age group except the one from 75 to 84 years of age (See Figure 1 and Table 2). There was a similar decrease in age-specific death rates in the United States as a whole. For the nation, however, there was scarcely any fall in rate for the age group from 75 to 84 years and a slight rise for the group 85 years of age and older.

¹Thompson, Warren S., and Whelpton, P.K. Population trends in the United States. New York, McGraw-Hill. 1933. p. 320.

² The mortality rate for the United States in 1942 (10.4 per 1,000 population) was the lowest in the 43 years of the national collection of mortality statistics (U.S. Bur. of Census. Vital Statistics-Special Reports, 1942. Vol. 20, no. 2:5. 1944.)

³Computed by the author from data in U.S. Bur. of Census. Vital statistics rates in the United States. 1900-1940. Washington, Govt. Print. Off. 1943. p. 153, 888.

Figure 1. Crude and specific death rates, Iowa, 1930, 1940¹
Adjusted death rates, Iowa, 1940²



¹ Source: U.S. Bur. of Census. Vital statistics rates in the United States, 1900-1940. 1942. p. 150, 153.

² Computed from above data.

Table 1. Crude death rates in Iowa, West North Central States and the United States

Year	Rates (number per 1,000 estimated population)		
	Iowa	West North Central States ²⁻³	United States ^{1*}
1942	10.3 ²	10.2	10.4 ²
1941	10.3 ²	10.3	10.5 ²
1940	10.4	10.3	10.7
1939	10.5	10.2	10.6
1938	10.3	10.1	10.6
1937	10.7	10.6	11.3
1936	11.4	11.4	11.6
1935	10.5	10.5	10.9
1934	10.7	10.8	11.1
1933	10.3	10.2	10.7
1932	10.4	10.3	10.9
1931	10.4	10.3	11.1
1930	10.6	10.3	11.3
1929	10.4	10.4	11.9
1928	10.3		12.0
1927	10.0		11.3
1926	10.5		12.1
1925	10.0		11.7
1924	9.8		11.6
1923	10.5		12.1
1922			11.7
1921			11.5
1920			13.0

¹Source: U.S. Bur. of Census. Vital statistics rates in the United States, 1900-1940. 1943. p. 123-124.

²Source: U.S. Bur. of Census. Vital statistics. Special Reports, 1942. Vol. 20, no. 16. 1944. p. 190.

³Includes Iowa, Kansas, Minnesota, Nebraska, and North Dakota.

*Registration states. Prior to 1925 not all states were included.

Table 2. Specific death rates by age, Iowa and the United States, 1930 and 1940¹

Age group in years	Death Rates (Number of deaths per 1,000 estimated population)				
	Iowa		United States		
	1930	1940	1930	1940	
Under 1 year	54.7	41.7	69.0	54.9	
1- 4 years	4.5	2.0	5.6	2.9	
5-14 years	1.6	1.0	1.7	1.0	
15-24 years	2.4	1.4	3.3	2.0	
25-34 years	3.3	2.1	4.7	3.1	
35-44 years	4.8	3.4	6.8	5.2	
45-54 years	8.7	6.9	12.2	10.6	
55-64 years	18.3	16.3	24.0	22.3	
65-74 years	43.4	41.0	51.4	49.0	
75-84 years	105.6	105.8	112.7	112.6	
85 years & over	224.3	221.4	228.0	229.9	
All ages	10.6	10.4	11.3	10.8	

¹Source: U.S. Bur. of Census. Vital statistics rates in the United States, 1900-1940. 1942. p. 150, 153.

It is to be expected that, with the rise in average age which is resulting because of the general fall of the birth rate, the reduction of mortality in the younger age groups, and the restrictions of immigration the past few decades, the crude death rate in Iowa will continue to rise in spite of continued effective public health work and improved economic conditions.

Mortality rates in Iowa by age group and by size of locality.¹ The crude death rate in Iowa in 1940 was lowest in rural communities, 8.8 per 1,000 population in contrast to the crude rate of 10.4 for the state. The crude rate in Des Moines, the only Iowa city of 100,000 or over, was 10.2, which was also lower than the state rate. Places of 2,500 to 10,000 had the highest crude death rate, 15.5. In places of 10,000 to 100,000 the crude rate was 11.5, or second highest in the state (See Figure 2, Table 4).

As indicated earlier, age-specific death rates are more comparable than are crude rates. In Table 4 are shown mortality rates for specific age groups during 1940 for Iowa by size of community. In all age groups the lowest death rates in Iowa were in rural communities. In all except the group 85 years and over the highest rates were in places of 2,500 to 10,000.

In order to obtain rates which are more comparable than crude rates but less bulky and unwieldy to use than age-specific rates, the crude rates of communities of various size may be adjusted in age. The pattern of variation of age-adjusted rates among areas of different population density

¹ In 1939 for the first time mortality rates by place of residence were provided for communities of various sizes (See footnote on p. 37.)

Figure 2. Crude and age adjusted death rates by size of locality, Iowa and the United States, 1940

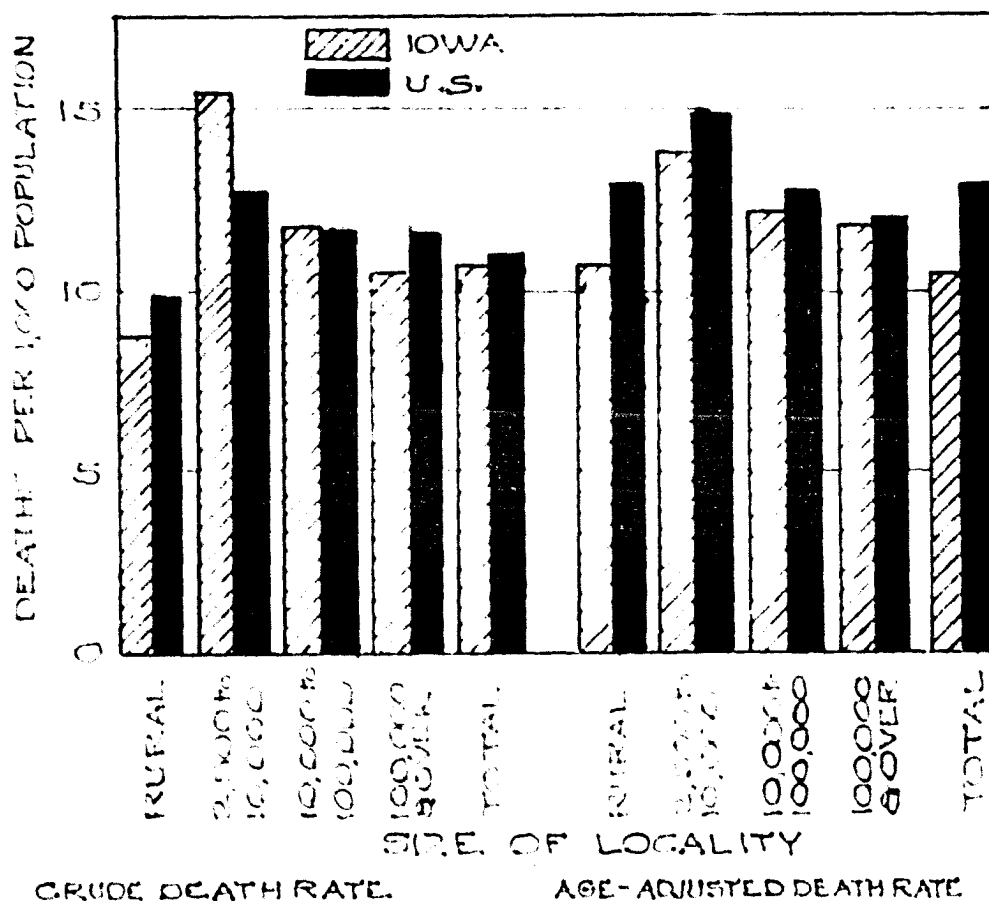


Table 3. Crude¹ and adjusted² death rates by size of locality, Iowa and the United States, 1940

Size of community	Death rates (Number of deaths per 1,000 population)			
	Iowa		United States	
	Crude	Adjusted	Crude	Adjusted
Rural	8.8	10.4	9.8	12.6
Places of 2,500-10,000	15.6	13.4	12.4	14.6
Places of 10,000-100,000	11.5	11.9	11.4	12.4
Places of 100,000 & over	10.2	11.4	11.3	11.6
State	10.4		10.8	12.7

¹Source: U.S. Bur. of Census, Vital statistics rates in the United States, 1900-1940. 1943. Table 11, pp. 198 & 201.

²Adjusted by the author, using direct method with population of Iowa, 1940, taken as standard population. Method is described in footnote*, pp. 66-69. Population data from Table IV, pp. 936 & 940.

in Iowa in 1940, using the total population of Iowa in 1940 as a standard population, remained the same as the variation in crude rate. Rural communities had the lowest age-adjusted death rate and places of 2,500 to 10,000 the highest, but the differential was less. For instance, had the population in each type of community been of the same age composition as the population of the state, the death rate would have been 10.4 in rural communities, 13.4 in places of 25,000 to 10,000, and 11.9 and 11.4 in places of 10,000 to 100,000 and cities of 100,000 and over respectively (See Figure 2 and Table 3).

Mortality rates in Iowa localities compared with United States. The pattern of mortality rates in places of various sizes is much the same for Iowa as for the United States. This is shown in Figure 2, Table 3. In all areas of the state the Iowa crude death rates in 1940 were approximately the same as in places of comparable population density in the United States as a whole, with one exception. In cities of 2,500 to 10,000 in population the Iowa rate of 15.5 was 20 per cent higher than the rate of 12.4 for places of that size in the United States as a whole. In both Iowa and the United States the highest death rate for each age group appeared in places of this size.

Age-specific rates were in general lower in Iowa in 1940 than in the United States. In rural areas, the rates were lower in every age group in Iowa than in the United States. Death rates under one year were substantially lower in all types of communities in Iowa than in the nation. For ages one to 44 there was not a great difference between the rates in Iowa and the

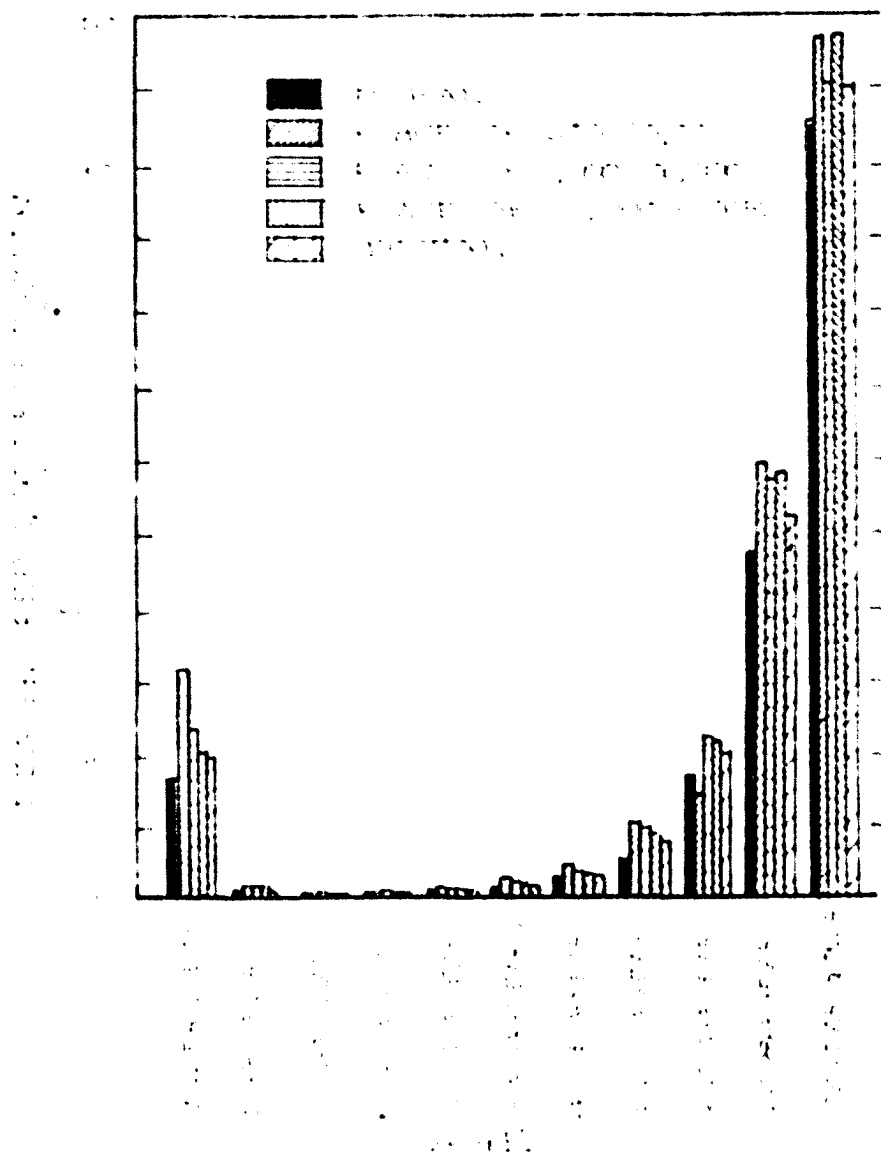
United States in communities of different size although Iowa rates still were lower. In general the rates for all ages were slightly higher in places of 2,500 to 10,000 than in either smaller or larger places for the United States as well as Iowa. For ages 65 to 75 the rates in places over 2,500 in population were higher than the rates for that age in the United States as a whole. For ages 75-84 years the rates were much the same in Iowa and the nation as a whole except that in rural areas the rates were quite a bit lower in Iowa. For ages over 85 years the rates were lower in Iowa than in the nation for all places except Des Moines, which is over 100,000 in population. (See Figure 3 and Table 4).

In the United States rural areas had the lowest rates for age group over 35 years but lowest rates for the population under this age were in cities over 100,000. The highest rates for population under 45 years of age in the United States were in places of 10,000 to 25,000. For those over this age the highest rates were in cities of 100,000 or over.

When the death rates in 1940 for communities of various types in Iowa and the United States are both adjusted to the population of Iowa in 1940 as a standard the contrast between rates in rural areas of the two regions is increased, as shown in Figure 2 and Table 3. The lowest rates are in Iowa rural areas. In both Iowa and the United States age-adjusted mortality rates are highest in places of 2,500 to 10,000 but the contrast between deaths in places of this size and other places is lessened. For places over 10,000 the adjusted rates are very nearly the same in Iowa and the United States.

Reasons for higher mortality rates in places from 2,500 to 10,000 in population. The question of why mortality should run consistently higher in places of 2,500 to 10,000 is difficult to answer. Income is one factor which is

Figure 3. Specific death rates by size of locality and age of population, Iowa, 1940¹



¹ Sources: U.S. Bur. of Census. Vital statistics rates in the United States, 1900-1940. 1943. Table 11. p. 198, 201.

Table 4. Specific death rates by locality and age of population, Iowa and the United States, 1940¹

Locality	Death Rates (Number of deaths per 1,000 population in each group) ¹											
	All	Under	1-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75-84	85 years
	ages	1 year	years	years	years	years	years	years	years	years	years	& over
Total												
Iowa	10.4	40.9	1.9	1.0	1.4	2.1	3.5	7.0	13.3	40.9	105.4	220.2
U.S.	10.8	54.9	2.9	1.0	2.0	3.1	5.2	10.6	22.3	48.0	112.6	228.9
Rural												
Iowa	8.8	34.0	1.7	0.8	1.2	1.7	2.7	5.3	12.8	35.1	86.5	213.7
U.S.	9.8	52.7	3.0	1.0	2.1	3.1	4.7	8.9	18.6	42.7	107.7	234.0
Places of 2500-10,000												
Iowa	15.5	63.6	2.5	1.9	2.2	3.1	5.2	10.9	22.5	51.8	118.5	238.3
U.S.	12.4	71.2	3.7	1.4	2.5	3.5	5.7	11.3	23.7	50.4	116.9	255.2
Places of 10,000-100,000												
Iowa	11.5	48.0	2.5	1.2	1.6	2.2	4.1	8.8	20.6	46.8	115.7	221.2
U.S.	11.4	59.6	2.9	1.1	2.0	3.1	5.3	11.1	23.7	50.4	115.2	233.6
Places of 100,000 or over												
Iowa	10.2	42.3	2.0*	1.1	1.3	2.4	4.2	7.7	18.3	45.7	116.8	237.2
U.S.	11.3	50.3	2.3	1.0	1.8	2.9	5.6	12.1	25.8	53.8	117.3	205.1

¹Source: U.S. Bur. of Census. Vital statistics rates in the United States, 1900-1940, 1943. Table 11. p. 198, 201.

²Exclusive of still births.

*Frequency less than 20.

likely to be important. Although data are not available relative to income in communities of various sizes in either Iowa or the United States, the correlation between mortality rates among states and their per capita income as discussed in the following chapter would permit one to pose the hypothesis that there is likely also to be a high correlation between income and mortality rates as classified by size of locality.

A second factor which appears is availability of health services as explored in Part III.

The fact that many farm people move into town when they retire does not explain why the above differences in mortality rates occur. Mortality rates corrected for age differences and mortality rates for specific younger age groups show the same pattern of difference which crude rates show. There is a related factor which may have some effect, however. It is likely that younger families who have poor health find farm life too rigorous and therefore move to town. There are no data as to how important this factor may be or how many of these families move to larger towns rather than rural villages.

It must be remembered that farm and non-farm rural vital statistics have not been separated. It is possible that mortality rates in villages included in rural vital statistics are even higher than mortality rates in places 2,500-10,000 in size. There is need for data thus separated.

Infant mortality with special reference to rural Iowa¹

Among the specific mortality rates which are considered especially valuable as an indication of the status of health are the infant mortality rate and the mortality rate for children under five years of age. The infant mortality rate is even considered by some writers to be an index of the plane of living or the cultural level of a society.² Others who would not attach to it this importance do consider it a helpful index in public health work.

¹In interpreting infant mortality rates certain precautions must be taken in addition to the general precautions relating to interpretation of data on mortality which are discussed on pages 38-45. It must be remembered, for instance, that the infant mortality rates and infant death rates, or deaths under one year, which are published by the United States Bureau of the Census are not the same. The infant mortality rate as used by the Bureau is the rate of deaths of infants under one year of age during a year, exclusive of stillbirths, to the number of live births recorded for that year. It is intended to be a measure of the risk during the first year of life. If the birth rate is fluctuating, infant mortality rates from one year to another will not be comparable. Deaths under one year of age during one year include not only infants born during that year but also some of those born during the previous year. If the birth rate is declining rapidly, deaths for some of the births of the previous year will be related to the decreased number of births during the current year and the mortality rate will be too high. Conversely, the infant mortality rate will be too low if the birth rate is increasing rapidly. For example, an increase of 0.5 in the crude birth rate results in an underestimate of a little more than one per cent in the infant mortality rate. Various corrections have been suggested for these errors. (U.S. Bur. of Census. Vital statistics for the United States, 1900-1940. p. 43-45.)

The infant death rate, or the age-specific death rate for children under one year as given in tables presenting age-specific rates for different groups, is the ratio of deaths, other than stillbirths, under one year to the estimated population of that age, which includes some children born during part of the previous year. According to the United States Bureau of Census (*Ibid.*, p. 44-45) the infant mortality rate and infant death rate will not differ greatly unless the birthrate is changing rapidly.

The United States Bureau of the Census points out that errors in infant mortality rates also arise from ambiguity of definition of the rate,

Trend of infant mortality rates in Iowa and the United States.

The infant mortality rate in both Iowa and the United States has shown a downward trend during the past few decades. The respective rates in 1942 were the lowest which had been recorded, to that time, 33.5 infant deaths per 1,000 live births in Iowa and 40.4 in the United States. Table 5 shows the decrease in infant death rates since 1925. The table also shows the downward trend in the ratio of still-

(Footnote continued)

differences in the definition of a still birth and errors of under-registration. It is possible that much of the decline in birth-rate is due to improved registration of births rather than to improved health conditions. (*Ibid.*, p. 45-46)

The death rate of children under five years of age may be helpful in determining health status. The United States Bureau of the Census suggests that in areas in which the public health program has made substantial progress in the reduction of deaths from communicable diseases causing death at younger ages, the death rate in the age group 0-4 years has greatly decreased and that the infant mortality rate is a more specific measure of the remaining problems but that in other areas less advanced in public health work affecting child mortality the death rate for the age group 0-4 years may be the most significant rate. (*Ibid.*, p. 47)

² U.S. Bur. of Census. Vital statistics rates in the United States, 1900-1940. p. 43. 1943.

Table 5. Infant death rate and stillbirth, for specific years¹

Year	Rates (Number per 1,000 live births)				
	Infant deaths		Stillbirths		
	Iowa	United States*	Iowa	United States*	
1942	33.5	40.4	20.3	28.2	
1941	36.3	45.3			
1940	36.5	47.0	22.5 ²	31.5 ²	
1939	38.8	48.0	23.5	32.0	
1938	40.5	51.0	25.4	32.1	
1937	44.2	54.4	25.6	33.4	
1936	48.2	57.1	27.1	34.4	
1935	47.1	55.7	26.9	35.8	
1934	50.6	60.1	26.9	36.2	
1933	48.3	58.1	29.3	37.0	
1932	47.9	57.6	31.6	37.8	
1931	49.0	61.6	31.8	38.2	
1930	53.9	64.6	31.4	39.2	
1928	56.0	71.7	32.6	33.1	

¹Source: U.S. Bur. of Census. Vital Statistics-Special Reports, 1942. Vol.19, no. 16:190. 1944.

²U.S. Bur. of Census. Vital statistics rates for the United States, 1900-1940. 1943. p. 655.

births per 1,000 live births for both Iowa and the United States.¹

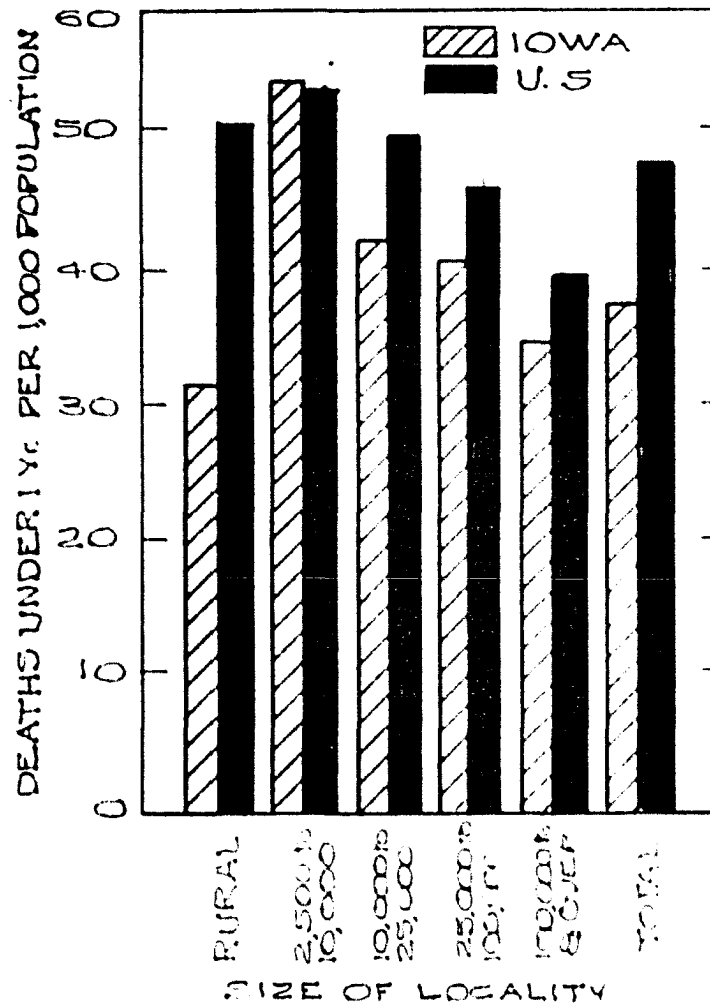
Comparison between rural and urban infant mortality rates in Iowa.

In each year since data by place of residence have been available in Iowa the infant mortality rate has been lowest in rural areas. It has been highest in places of 2,500 to 10,000 and 10,000 to 25,000. This is also true of the general mortality rate. The rate of 31.7 deaths per 1,000 live births in rural areas in 1940, for example, is but 60 per cent of the rate of 53.6 in places of 2,500 to 10,000. In 1940, only in rural areas and in Des Moines were the rates below the state infant mortality rate of 36.5 (See Figure 3 and Table 6). The pattern is the same as that of the total mortality rate for the state.

Comparison of infant mortality rates in Iowa and United States. The pattern of infant mortality rates in localities of various sizes in the United States is different from that of other mortality rates for the nation as a whole. For the nation the lowest rates in these years have been in cities of 100,000 or over and second in places of 25,000 to 100,000. Places of 2,500 to 10,000 had the highest rates and the second highest rates fluctuated in different years between rural areas and places of 10,000 to 25,000 (See Table 6).

¹The Bureau of the Census warns that caution must be used in the interpretation of stillbirths, since registration is more complete in some states than in others, and also because differences in legal definitions of a stillbirth individual states make it impossible to compile strictly comparable data for all states. (U.S. Bur. of Census. Vital Statistics-Special Reports, 1942. Vol. 20, no. 16:6. 1944.)

Figure 4. Infant mortality by size of locality,
Iowa and United States, 1940¹



¹Source: U.S. Bur. of Census. Vital statistics rates in the United States, 1900-1940. p. 578.

Table 6. Infant mortality rates in Iowa and the United States by size of locality and by place of residence of mothers, 1939-1942

Area and size of community	Rate (number of deaths under one year per 1,000 live births)		
	1939	1940	1942
Iowa ¹			
Rural	31.7	31.7	29.9
Total urban ³	38.8	36.5	33.5
Places 2,500-10,000	53.6	53.6	40.6
Places 10,000-25,000	59.2	41.9	32.4
Places 25,000-100,000	44.3	40.2	40.9
Places 100,000 or over	39.5	34.1	37.9
United States ²			
Rural	50.3	50.1	43.3
Total urban ³	48.0	47.0	40.4
Places 2,500-10,000	53.2	53.4	44.6
Places 10,000-25,000	50.6	48.4	41.2
Places 25,000-100,000	47.4	45.1	40.1
Places 100,000 or over	41.2	39.3	34.5

¹Source: U.S. Bur. of Census. Vital statistics rates in the United States, 1900-1940. p. 585.

²Source: Ibid., p. 578.

³Source: U.S. Bur. of Census. Vital Statistics, Special Reports, 1942: Vol. 20, no. 2:16. 1944.

The general death rate for infants in Iowa in 1942 was below that of the United States as a whole. The same was true for places of various population density, except for cities of 2,500 to 10,000, for which the rate in Iowa was 40.9 compared with 40.1 for the United States. However, for the United States the rate in rural areas was higher than in urban. This is probably due to the high infant mortality rates in some of the southern states which have large groups of people with low income and which have relatively few available health services.

In the nation, in 1942, 44.8 per cent of the deaths of infants under one year per 1,000 live births were in rural areas and 55.2 per cent were in urban areas. These represented rates of 43.3 deaths per 1,000 live births in rural areas and 38.3 in urban areas. For the nation the rate was 40.4. The lowest rate was in cities of 100,000 or more, 34.5; the highest rate was in places of 2,500 to 10,000, a rate of 44.6. The second highest was in rural areas, in which the rate was 43.3.¹

Infant mortality rates in Iowa communities in contrast with those of other states. When death rates for specific age groups are compared for rural communities in the United States, Iowa ranks near the top with respect to death rates for children under one year. For rural children under one year Iowa's rate for 1940 was 34.0 per 1,000 rural children of that age.

¹U.S. Bur. of Census. Vital Statistics-Special Reports, 1942. Vol. 19, no. 2:16. 1944.

States with lower rates in rural areas included Oregon, Kansas, and Nebraska, with rates of 30.5, 33.1, and 33.4 respectively. For the most part the relatively low death rates in the large cities occurred in states having relatively low death rates.

In an array of states according to the average of infant mortality rates, i.e. deaths under one year per 1,000 live births, in rural areas for three years 1939, 1940 and 1942, Iowa had the lowest rate, with an average infant mortality rate of 31.1 for the three years. There was some fluctuation among the states in arrays for the separate years. In 1940, for example, Oregon had a lower infant mortality rate than Iowa, 30.7 as compared with 31.7. In 1942 Colorado, with a rate of 26.7, and Minnesota, with a rate of 27.1, had lower rates than the 31.9 rate in Iowa.¹ The highest average rates for the three years were in New Mexico, with a rate of 110.8, and Arizona, with 97.3.

A similar comparison of states in an array of the average infant mortality rates for the same three years in places of 2,500 to 10,000 in population shows 22 states with lower rates. The average rate in Iowa was 49.3. Rhode Island had the lowest average, 25.3, and New Jersey second, with 29.3. The highest average rates again were in New Mexico and Arizona, with 93.7 and 80.3 respectively.²

¹Computed from data in: (1) U.S. Bur. of Census. Vital statistics rates in U.S., 1900-1940. 1943. p. 578, (2) Vital Statistics-Special Reports, 1942. Vol. 19, no. 2:13. 1944.

²Ibid.

Iowa ranks fourteenth in an array of states arranged from lowest to highest according to a similar average of infant mortality rates in places of 10,000 or over in 1940. The rate was 39.4. At the top are Minnesota, Illinois and Washington with rates of 31.7, 32.1, and 32.2 respectively. The lowest were New Mexico with 84.8 and Missouri with 77.2.

A similar array of average rates for the years 1939, 1940, and 1942 also shows Iowa in fourteenth place, with an average of 39.4. Oregon is at the top of the array of average rates for the three years and Connecticut second. Their rates were 31.0 and 33.3 respectively. New Mexico, with 82.2 and Arizona, with 80.0 had the highest rates.¹ Eleven states had lower state infant mortality rates than Iowa in 1942. The rate in Iowa was 33.5.

The high infant mortality rate in places of 2,500 to 10,000 in Iowa raises the average infant mortality rate for the state. In places of this size nearly half the states had lower average rates in the three years quoted. Rural areas in Iowa, however, rank at the top of the array. The state as a whole falls just within the top quartile of states with the lowest infant mortality rates.

In the years 1940, 1941 and 1942 the infant mortality rate in Iowa was below that for the North West Central States, which in turn had lower rates than the nation. In 1940 the rates were for Iowa 36.5 infant deaths per 1,000 live births; for the West North Central States 39.2; for the United States, 47.0. In 1941 the rates were respectively 36.3,

¹Ibid.

38.9, and 45.3. In 1942 again they were 33.5, 34.8, and 40.4 (See Table 5).

It is interesting to note that a count of the states in which the infant death rates in 1942 in rural areas is lower than in urban, shows that in 54.2 per cent of the states this is true, contrary to popular belief. There is, however, a large range of difference between the rural and urban areas in some of the states. For example, there was a wide range between the two in New Mexico, in which the rate of infant mortality in rural areas was 111.2 and in urban areas 77.1. On the other hand, there was little difference between the rural and urban infant mortality rates in Oregon. The rural rate was 31.1 and the urban 30.1.¹

Comparisons among Iowa counties. At present it is impossible to make comparisons of infant mortality rates between counties in Iowa on the basis of residence. Mortality rates according to place of residence have been published since 1940. However, for a single county the rate has fluctuated greatly from year to year. For example, in 1942 Winnebago County had the lowest rate among the 99 counties, whereas in 1940 it was eighty-ninth in an array from high to low with 88 counties having lower rates. Green County dropped from first place with the lowest rate, in 1940 to sixty-fourth in 1942. Howard County, on the other hand, went up from ninety-first place in 1940 to tenth in 1942. It is possible that when data for more years are available averages over a period of time may be more stable. At present, however, these rates are unreliable.

¹U.S. Bur. of Census. Vital Statistics-Special Reports, 1942. Vol. 19, no. 2. p. 16.

Maternal mortality rates in Iowa

The maternal mortality rate as defined by the United States Bureau of the Census is the number of deaths from puerperal causes for a given area and time period per 1,000 live births in that area and time period. It is pointed out that this ratio somewhat over-estimates the true risk of death from this cause inasmuch as it does not include the total number of pregnancies. It excludes the pregnancies ending in abortions, miscarriages, and stillbirths although it still includes deaths caused by them. The ratio is also affected by under-registration of live births.¹

Trend of maternal mortality rate in Iowa and United States. For both Iowa and the United States in recent years the maternal mortality rate has shown a remarkable movement downward. In the six-year period from 1937 to 1942 the decline was greater than ever recorded except for the years immediately following the influenza epidemic around 1918, when the maternal mortality rate was unusually high, 9.2 per 1,000 live births, a rate doubtless related to the temporary increase in crude death rate at that time.²

It is to be noted in Table 7 that, for Iowa, the maternal mortality rate has consistently run lower than the rate for the United States in general. The maternal death rate in Iowa in 1942 was 1.9 per 1,000 live births and in the United States 2.6. As shown in Table 7, rates for both Iowa and the nation have decreased since 1937.

¹U.S. Bur. of Census. Vital statistics rate in the United States, 1900-1940. p. 48-49.

²U.S. Bur. of Census. Vital Statistics-Special Reports, 1942. Vol.19, no. 6:65.

Table 7. Maternal mortality rates, Iowa and United States, for specific years

Year	Maternal mortality rates ¹ (Number of maternal deaths per 1,000 live births)	
	United States	Iowa
1942	2.6	1.9
1941	3.2	2.6
1940	3.8	3.4
1939	4.0	3.0
1938	4.4	3.3
1937	4.9	4.5
1936	5.7	4.6
1935	5.8	5.4
1934	5.9	5.1
1933	6.2	5.3
1932	6.3	5.4
1931	6.6	5.0
1930	6.7	5.9
1925	6.5	6.6
1920		

¹Source: U.S. Bur. of Census. Vital Statistics-Special Reports, 1942, Vol. 19, no. 16:190. 1944.

Maternal mortality rates in Iowa compared with other states. In an array of states arranged from lowest to highest in order of maternal death rates in 1940, Iowa ranks twenty-second with a rate of 3.4 per 1,000 live births. North Dakota had the lowest rate, 1.7, and Minnesota the second, 2.2. The highest rates were in South Carolina with 6.8 and Florida with 6.5.¹

¹U.S. Bur. of Census. Vital statistics rates in the United States, 1900-1940. p. 621.

When the states were arrayed in order from lowest to highest maternal mortality rates for 1942 Iowa ranked on the border line between the top and second quartile.

In 1942 the range in the maternal mortality rates among the States was from 0.7 per 1,000 live births in Nevada to 5.3 in South Carolina. In general, the highest death rates from puerperal causes occurred in the South among the residents of the South Atlantic, East South Central, and West South Central States. The rate for residents of the Northern and the Pacific States was generally lower than the rate for the United States.¹

Maternal mortality rates in localities of various sizes. The pattern of maternal mortality rates among localities of various sizes in Iowa and the United States is much the same as the pattern of total and infant mortality rates. That is, in both Iowa and the country as a whole the highest maternal mortality rates were in places of 2,500 to 10,000. However, the lowest rates in Iowa were in rural areas,² whereas in the nation as a whole rural areas had next to the highest maternal mortality rates and cities of 100,000 or over had the lowest (See Table 8).

Principal causes of death

Reasons for limited presentation of causes of death. Only limited presentation of data concerning principal causes of death in Iowa is included. In the first place, as indicated earlier, interpretation

¹U.S. Bur. of Census. Vital Statistics-Special Reports, 1942. Vol. 19, no. 6:65.

²Except that in 1939 the Iowa rate was lowest in Des Moines.

Table 8. Maternal mortality rates by size of locality,
Iowa and United States, 1940

Year and type of community	Iowa ¹	United States ²	Minnesota ³	South Carolina ⁴
Rural				
1940	2.3	4.0	2.6	6.6
1939	2.7	4.0	2.8	5.6
Cities, 2500-10,000				
1940	5.8	4.3	1.1	8.1
1939	4.0	4.9	3.0	9.5
Cities, 10,000-25,000				
1940	4.9*	4.0	1.8	8.0
1939	3.6*	4.9	3.2	9.0
Cities, 25,000-100,000				
1940	4.8	3.7	0.5	7.0
1939	3.6	4.0	0.5	5.8
Cities, 100,000 & over				
1940	3.1*	3.1	2.0	11.7
1939	1.8*	3.6	2.9	9.7
Total				
1940	3.4	3.8	2.2	6.9
1939	3.0	4.0	2.9	6.0

¹Source: U.S. Bur. of Census. Vital statistics rates for the United States, 1900-1940. 1943. p. 629.

²Ibid., p. 622.

³Ibid., p. 636.

⁴Ibid., p. 643.

*Frequencies less than 20.

of data on specific causes of death is difficult because of the large number of influences entering into the picture. For example, trends in rates of deaths from infectious diseases are difficult to determine because the incidence of such diseases is epidemic in character. In the second place, attention in this thesis is confined largely to points thought pertinent to rural-urban differences. It is difficult to determine significant differences between rural and urban areas with respect to specific causes of death. However, it is of interest to note the major causes of death for the population as a whole.

Principal causes of death in Iowa and United States. The five principal causes of death both in Iowa and in the United States as a whole in 1942 were: (1) diseases of the heart, (2) cancer and other malignant tumors, (3) intracranial lesions of vascular origin, (4) nephritis, and (5) pneumonia (all forms) and influenza.¹ These were the causes of 65.4 per cent of the deaths registered in the state of Iowa.

The Iowa State Department of Health has reported the following three causes of death as most numerous and in the same order of importance for each year from 1923 to 1939: (1) heart disease (all forms), (2) cancer (all forms) and (3) cerebral hemorrhage, embolism, and thrombosis. The next seven main causes included the same diseases for each of the 17 years from 1923 to 1930 but in various positions in the array.² They include pneumonia (all forms),

¹U.S. Bur. of Census. Vital Statistics-Special Reports, 1942. Vol. 20, no. 16:189.

²Except that for 1934 appendicitis replaced influenza in the top ten.

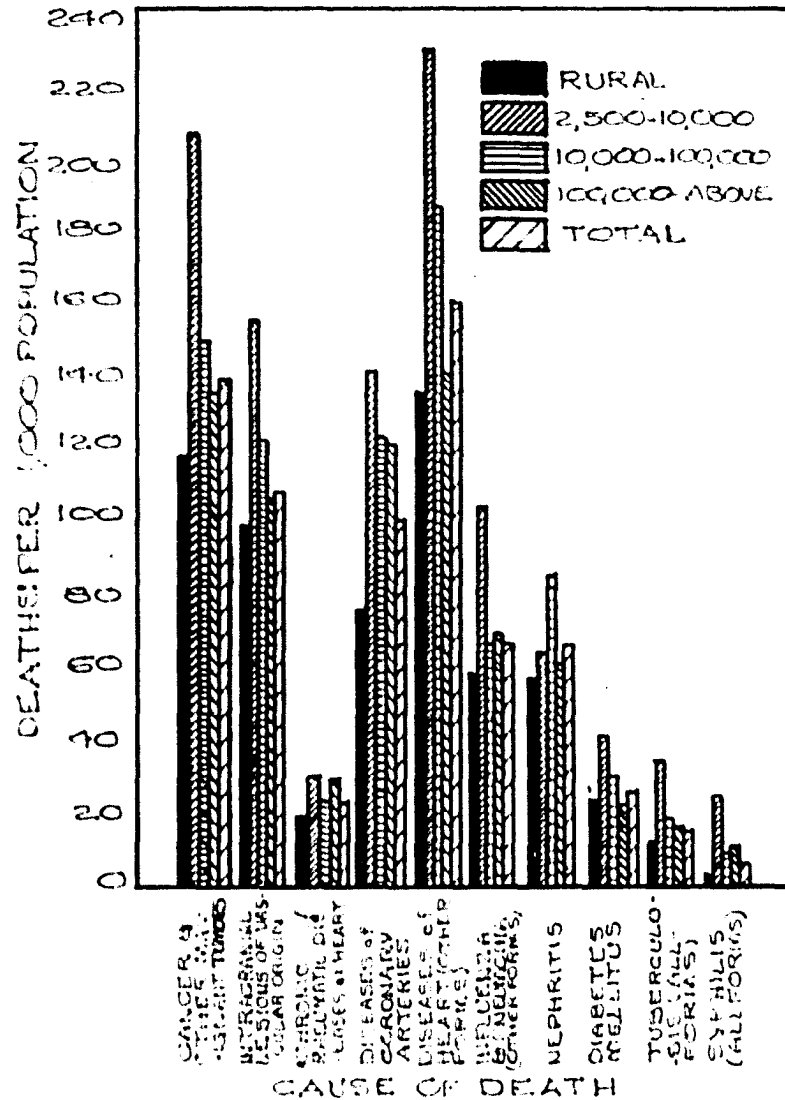
congenital malformation and diseases of early infancy, accidents, nephritis, influenza, tuberculosis (all forms) and diabetes.¹

A comparison of the relative mortality rates for these and other causes of death in Iowa and the United States is of interest. Table 9 presents such a comparison. The rates are higher in Iowa for diseases of the heart, cancer, and intracranial lesions of vascular origin. The death rates for Iowa and the United States in 1940 were, respectively, 99.0 and 77.1 for diseases of the coronary arteries and angina pectoris; 23.6 and 20.8 for coronary rheumatic diseases of the heart; 159.3 and 144.7 for other forms of diseases of the heart; 138.4 and 120.3 for cancer; and 111.9 and 90.9 for intracranial lesions of vascular origin. On the other hand, for tuberculosis, syphilis, and influenza and pneumonia the rates in Iowa were lower than those for the nation. The contrast was particularly striking in the case of tuberculosis, from which the death rate in Iowa in 1940 was 17.6 as against 45.9 in the nation. Other contrasts were 5.8 against 14.4 for syphilis in Iowa and the United States, respectively, and 66.5 and 70.3 for influenza and pneumonia of all forms.

Comparison of principal causes in localities of various sizes in Iowa and United States. A comparison of reported death rates from 10 specific causes among communities of various sizes as presented in Figure 4 and Table 9, indicates that in general rates reported were lower in rural areas both in Iowa and in the United States, except that in the United States the rates for influenza and pneumonia and for nephritis were lowest in

¹Iowa State Department of Health. Biennial reports (1) 1938/40; 164 and (2) 1940/1942;156.

Figure 5. Specific death rates for selected causes, by size of locality, Iowa¹ and United States² 1940



¹Source: Computed from:

- (a) Data on deaths in U.S. Bur. of Census. Vital statistics rates of the United States, 1940. Part II. p. 220-221. 1943.
- (b) Data on population in U.S. Bur. of Census, 18th Census: 1940. Population 2:847. 1943.

²Source: U.S. Bur. of the Census. Vital statistics rates in the United States, 1900-1940. 1943. p. 534-553.

Table 9. Specific death rates for selected causes, by size of locality, Iowa¹ and United States² 1940

Causes and area	Death rates (Number of deaths per 100,000 population of each locality)				
	: 2500- :10,000-:100,000				
	Total	Rural	10,000	100,000	and above
Cancer and other malignant tumors	:	:	:	:	:
Iowa	: 138.4	118.8	208.1	150.3	134.5
United States	: 120.3	92.4	134.9	134.2	148.7
Intracranial lesions of vascular origin	:	:	:	:	:
Iowa	: 111.9	98.2	156.3	122.8	107.6
United States	: 90.9	89.2	109.4	101.2	81.2
Chronic rheumatic diseases of heart	:	:	:	:	:
Iowa	: 23.6	20.8	31.3	24.5	30.7
United States	: 20.8	18.9	20.1	20.6	24.2
Diseases of coronary arteries, angina pectoris	:	:	:	:	:
Iowa	: 99.0	77.6	141.9	122.2	120.1
United States	: 77.1	57.4	93.6	95.9	89.3
Diseases of heart (other forms)	:	:	:	:	:
Iowa	: 159.3	135.4	230.7	184.1	141.4
United States	: 194.7	150.4	204.8	203.3	237.5
Influenza and pneumonia (all forms)	:	:	:	:	:
Iowa	: 66.5	58.0	103.9	66.9	68.8
United States	: 70.3	75.9	80.0	66.5	61.3
Nephritis	:	:	:	:	:
Iowa	: 68.2	57.6	84.4	87.2	60.7
United States	: 81.5	78.4	98.5	89.2	76.0
Diabetes mellitus	:	:	:	:	:
Iowa	: 28.2	24.7	41.2	31.1	24.4
United States	: 26.6	19.3	29.9	30.7	33.9
Tuberculosis (all forms)	:	:	:	:	:
Iowa	: 17.6	12.7	35.8	19.8	18.1
United States	: 45.9	41.3	47.7	42.4	54.6
Syphilis (all forms)	:	:	:	:	:
Iowa	: 6.9	2.5	20.5	9.5	10.6
United States	: 14.4	13.3	15.1	14.3	16.0

¹Source: Computed from:

(a) Data on deaths in U.S. Bur. of Census. Vital statistics rates of the United States, 1940. Part II. p. 220-221. 1943.

(b) Data on population in U.S. Bur. of Census, 16th Census:1940. Population 2:847. 1943.

²Source: U.S. Bur. of the Census. Vital statistics rates in the United States, 1900-1940. 1943. p. 534-553.

cities of 100,000 or over in population. However, the highest rates in Iowa were in places of 2,500 to 10,000 for all of the causes except nephritis, for which Des Moines had the highest rate, and for diabetes mellitus for which the rates in rural areas and in Des Moines were about the same. In the United States the rates for some causes were highest in places of 2,500 to 10,000 but highest in the largest cities for others. Rates were highest in places of 2,500 to 10,000 for disease of the coronary arteries and angina pectoris and for influenza and pneumonia. They were highest in places of 100,000 and over for tuberculosis, syphilis, cancer, diabetes mellitus and diseases of the heart other than diseases of the coronary arteries and angina pectoris.

Principal causes as related to age structure of population. Four of these major causes of death in Iowa and the United States reflect differences in age structure of the population. They are diseases for the most part characteristic of old people. However, they are also important among persons of younger age. The changes in major causes of death for different age groups in 1942 are shown in Table 10. Diseases of the heart, cancer and other malignant tumors, nephritis, and intracranial lesions of vascular origin are diseases characteristic of old age but except for the last they are among the five major causes of death for all age groups over 15 years and the last is among the five major causes of death for all ages over 25. Pneumonia also is one of the five major causes of death for people of age 65 years or over and also for children under 15. In the case of the old age group, however, the pneumonia very likely is the type associated with disease of the heart.

Accidents were a major cause of death among children and young adults. Among infants and children under four congenital malformation and injuries

Table 10. Per cent of deaths from five leading causes in each age group, Iowa, 1942¹

Causes of death	Age group						
	Under 1: year	1-4 yrs.	5-14 yrs.	15-24 yrs.	25-44 yrs.	45-64 yrs.	65 yrs. & over
Premature birth	34.4						
Congenital malformation	15.9	5.6					
Injury at birth	13.5						
Pneumonia (all forms) and influenza	10.8	15.8	6.3				4.5
Other diseases peculiar to the first year of life	7.0						
Accidental burns		7.7					
Motor-vehicle accidents		7.4	13.7	20.1	7.2		
Accidental drowning		6.7	10.6				
Appendicitis			7.6				
Diseases of the ears, nose, and throat			4.8				
Tuberculosis				8.4	9.4		
Diseases of the heart				5.8	14.1	30.4	34.8
Cancer and other malignant tumors				4.9	14.3	21.0	14.2
Disease of pregnancy, child- birth, puerperium				4.7			
Nephritis					5.6	6.4	7.5
Intracranial lesions of vascular origin						9.1	14.8
Diabetes mellitus						2.9	
Other causes	18.4	56.7	57.1	56.2	50.4	30.1	24.2
All causes	100.0	100.0	100.0	100.0	100.0	100.0	100.0

¹Source: U.S. Bur. of Census. Vital Statistics-Special Reports, 1942.
Vol. 20, no. 16:193 and Ibid. 20, No. 2:11. 1944.

at birth were major causes of death. Premature birth is reported to have caused a third of the deaths of infants under one year of age.

Morbidity Incidence and Rates in Iowa and
the United States

The incidence and rate of morbidity as discussed earlier are indicated by state and national vital statistics only for a few specific diseases, for the most part for infectious diseases only. The statistics do not indicate duration of illness or place of residence of the patients. General indications of the extent of morbidity have been given by the survey of the Committee on Costs of Medical Care and by the National Health Survey. A few studies of selected groups, for the most part urban groups, have been made.

At best these studies give a rough indication of the health status of the country as a whole. They give very little indication of the picture of the extent of morbidity in the rural population as separate from the urban. A few rural areas were included in the surveys but for the most part the data concerning them were combined with the data on urban population. Thus far no research has been done concerning the extent or types of morbidity in Iowa. It would be helpful in attempting a measure of needs for medical care and allied services to have such research.

Because data referring to morbidity among farm groups are lacking, this section will include the general findings of the two nation-wide surveys. The incidence of disabling illness on any one day, the number of illnesses suffered by families and individuals per year, the duration of disability, and major causes of illness will be discussed briefly.

Incidence of disabling illness on any one day

On any one day approximately two per cent of the population of the country as a whole is unable because of illness to carry on usual activities, according to the Committee on the Cost of Medical Care.¹ This figure tallies with that found by the Metropolitan Life Insurance Company surveys among its field staff, in which it was found that 2.0 per cent of the group were sick on the day of the interview and that 1.8 per cent were too sick to work. There were similar findings by various state committees appointed to study the subject around 1918-1919.² A larger figure was reported in the National Health Survey,³ in which 4.4 per cent of the people visited were disabled on the day of the canvass.⁴ Of the workers from 15 to 64 years of age 1.1 per cent were reported as "unemployable" because of disability.⁵

¹Falk, Isador S., Klem, Margaret C. and Sinai, Nathan. The incidence of illness and the receipt and costs of medical care among representative family groups. (Publications of The Committee on the Costs of Medical Care. no. 26.) Chicago, The Univ. of Chicago Press. 1933.p. 79.

²Epstein, Abraham. Insecurity, a challenge to America. New York, Random House. 1938. p. 399-400.

³Britton, Follo H., Collins, Selwyn D., and Fitzgerald, James S. The national health survey:some general findings as to disease, accidents, and impairments in urban areas. U.S. Public Health Reports 55:445, 464, 465. 1940.

⁴This higher figure is explained in part by the fact that the canvass in the National Health Survey took place during the winter whereas the committee on Costs of Medical Care canvass was carried on periodically during a whole year. Ibid.,:446.

⁵Ibid., p. 465.

Number of illnesses per year

The average number of illnesses¹ per family per year was found by the Committee on Costs of Medical Care to be 3.8.² Of the families canvassed, eight per cent had experienced no illnesses during the year, whereas seven per cent had suffered nine cases or more.³

As might be expected, the larger families had a larger incidence of illness. Of the families with only two persons, 18 per cent had suffered no illnesses during the year, four per cent had six or more illnesses, only 0.4 per cent experienced nine or more cases. On the other hand, families of eight or more, 39 per cent, suffered six or more illnesses and 15 per cent nine or more illnesses during the year.⁴

Of the individuals canvassed by the Committee on Costs of Medical Care 47.1 per cent had had no sickness during the year; 32.2 per cent had had one ailment; 13.6 per cent were ill twice; 6.4 per cent three or four times; and eight per cent six or more times.⁵ The rate of illnesses which disabled patients for a week or longer, including hospital care, confinements, and fatal illnesses of any duration of disability, as reported in the National Health Survey, was 171 per 1,000 persons.

¹As measured in ability to carry on usual activities.

²Falk, Klem, and Sinai, op. cit., p. 47-49.

³Ibid., p. 44-47.

⁴Ibid., p. 44-48.

⁵Ibid., p. 43.

The Committee on Costs of Medical Care reported a crude illness rate of 850 cases per 1,000 persons per year¹ including all illnesses, disabling or not, the rate adjusted to the age distribution of white population of the death registration in states in 1930 as a standard population.²

There is evidence that the prevalence and frequency of sickness vary with age, as shown by the surveys of the Committee on Costs of Medical Care and the National Health Survey. In general, there was greater evidence of illness under 5 years of age and over 65 years of age. The lowest incidence was found in the age group 15 through 19 years of age. The incidence was fairly low from age 20 through 29. From age 30 to 65 there was a gradual rise.³ The rise was rapid after age 65.

The type of illness also was found to vary with age. At all ages respiratory diseases were a major cause of illness but particularly before age five and after age 65. Digestive diseases were common for all ages. The communicable diseases were less frequent after 20 years of age. For persons over 65 years of age the degenerative diseases were most common.

Duration of disability

Individuals in the survey by the Committee on Costs of Medical Care

¹White population.

²Collins, Selwyn D. Causes of illnesses in 9,000 families based on nationwide periodic canvasses, 1928-32. U.S. Public Health Reports 48:296. 1933.

³Collins, Selwyn D. The incidence and causes of illness at specific ages. Milbank Memorial Fund Quar. 13:337. 1935.

were disabled or unable to carry on their usual activities because of illness an average of 7.1 days per year. The number of days of disability per person observed per annum for all illnesses as reported in the National Health Survey was 9.9. In the latter survey, persons with acute illnesses averaged 2.6 days of disability; those with chronic disabilities, 7.3 days. The average number of days per case was 58. The average number of days for acute illnesses was 26 days per case; for chronic illnesses, 154 days per case.¹

The Committee on the Cost of Medical Care reported that 68 per cent of the people enumerated had not been confined to bed because of illness during the preceding year, whereas 32 per cent had been confined to bed for at least one day. Approximately 17 per cent had spent five days in bed, 8.5 per cent six to 11 days, five per cent 12-25 days, and two per cent 25 days or more. Of the people canvassed in the National Health Survey 17.7 per cent were reported as having some chronic disease or impairment, the symptoms of which had been present for at least three months, but which was not necessarily disabling.²

It was found that not only the number but also the duration of illnesses varied with the age group of the population. The average period per illness was the shortest for the age group under 15 years. For the adult group of age 15-64 years the average was 9 days per year. For the group of age 65 years and over there was an average of nearly five weeks of disability per person per year (See Table 11).

¹Britten Collins, and Fitzgerald, op. cit., p. 445, 464, 465.

²Ibid., p. 446.

Table 11. Annual frequency and disability rates of illness disabling for one week or longer, according to age, among families canvassed in National Health Survey, 1935-1936¹

Age	Frequency per 1,000 persons	Days of disability	
		Per case	For person observed
All ages	171	58	9.9
Under 5	214	27	5.7
16-24	131	42	5.4
25-64	153	69	10.5
65 & over	279	131	36.1

¹Source: Britten, Hollo H., Collins, Selwyn P., and Fitzgerald, James S. The national health survey: some general findings as to disease, accidents, and impairments in urban areas. U.S. Public Health Reports 55,450. 1940.

Causes of illness

In the survey of the Committee on Costs of Medical Care, respiratory causes of illness were the most frequent. Three of the four most frequent specific illnesses were of this type, as shown in Table 12. Accidental injuries came next most frequently, with indigestion and other stomach disorders following. These illnesses were of the type which do not seem serious because they usually do not require bed care or prove disabling in the sense of keeping people from carrying on their usual activities. No measure was given of the accumulative effect of these illnesses. Their frequency would indicate need for preventive care in the nature of building up resistance by means of adequate diet and rest and of measures to prevent accidents. Minor respiratory conditions caused the largest number of illnesses, whether one considers either the total rate, rate for disabling cases, or rates for bed cases.¹

The causes of illnesses which disabled patients for at least a week were, in order of frequency per 1,000 persons: diseases of the respiratory tract, communicable diseases, diseases of the digestive system, accidents, confinements, cardio-vascular-renal diseases. In order of days of disability of persons observed, the causes were: disease of the respiratory system, cardio-vascular-renal diseases, nervous and mental diseases, and diseases of the digestive system.²

The major causes of illness are not in general the most frequent causes of death, according to comparisons of the mortality reports of the United States Bureau of the Census and the morbidity reports of the surveys of the

¹Collins, Selwyn D., Causes of illnesses in 9,000 families based on nation-wide periodic canvasses, 1928-32, p. 305, 308.

²Britten, Collins, and Fitzgerald, op. cit., p. 449.

Table 12. Major causes of illness and deaths among the families in the survey by the Committee on Costs of Medical Care, 1928-31¹
(Annual rate per 1,000 persons canvassed)

Cause	Rate (Number per 1,000 population)
<u>Illness</u>	(case rate*)
Respiratory	328.5
Digestive	86.0
Accidents	73.6
Communicable	71.4
Skin	33.2
General	32.0
Circulatory	26.9
Nervous	24.1
<u>Death</u>	(death rate)
Circulatory	239.2
Respiratory	184.3
General	148.0
Nervous	108.9
Accidents	101.3
Kidney	90.8
Digestive	77.1
Malformation & early infancy	60.4

*Adjusted to age distribution of white persons in the Registration States.

¹ Source: Collins, Solwyn D. Age incidence of illness and death considered in broad disease groups. U.S. Public Health Reports 50: 510, 511. 1935.

Committee on Costs of Medical Care and the National Health Survey, presented in Table 13. However, there may be more similarity than appears on the surface. Possibly the difference in part lies in classification of causes rather than differences in the causes themselves. The errors of reporting the morbidity in the national surveys no doubt would be the major reason for the difference.

It was found in the National Health Survey that the diseases of childhood are overwhelmingly of an acute nature, the ratio of acute to chronic being 12 to one, whereas a majority of the serious illnesses among persons aged 65 years and over were chronic, the ratio of acute to chronic illness being 10.6 to one. It was found also that the days of disability per year increased rapidly with age, from 27 days among children to 131 in the group 65 years of age or over. About a third of the illness of those in the latter group were disabled for the full year.

Morbidity rates in Iowa

As indicated earlier in the chapter there are few data on the incidence of illness in Iowa with the exception of certain contagious diseases.

Outstanding among contagious diseases in its prevalence among the rural population is brucellosis. The Iowa State Department of Health reports that rates of incidence of brucellosis in Iowa from 1939 to 1943 showed an increase and that the rates were higher among farm groups than among persons in towns and cities except for the specific group of packing house workers. The rates increased from 8.7 in 1939 to 19.7 among farm groups, 6.9 to 12.7 in places under 2,500, and from 1.8 to 5.0 in places of 2,500 or over. The specific morbidity rate for the disease among packing house workers was particularly high, ranging from 95.0 in 1939 to 335.0 in 1940. In 1943 the rate was 270.0 (See Figure 6, Table 14).

Table 13. Annual rate of illness from specific causes as indicated by two national surveys

A. Incidence of specific conditions as indicated by the survey of the Committee on Costs of Medical Care, 1928-31¹

Cause	Rate per 1,000 persons canvassed		
	Disabling		Bed cases
	Incidence ²	illness ³	
Colds and bronchitis	156.1	71.4	86.1
Influenza and grippe	86.1	73.0	76.6
Accidental injuries	74.7	22.4	36.0
Tonsillitis, laryngitis, throat (except tonsilectomies)	53.4	31.4	36.2
Gastritis, indigestion, and other stomach conditions	41.7	19.6	23.4
Measles	24.4	22.0	22.7
Confinements, miscarriages and abortions	23.6	23.5	23.6
Ear diseases	23.5		

¹Source: Collins, Selwyn D. Causes of illnesses in 9,000 families based on nation-wide periodic canvasses, 1928-32. U.S. Public Health Reports 48:301. 1933.

²Whether disabling or not.

³Resulting in inability to carry on usual activities for one week or more.

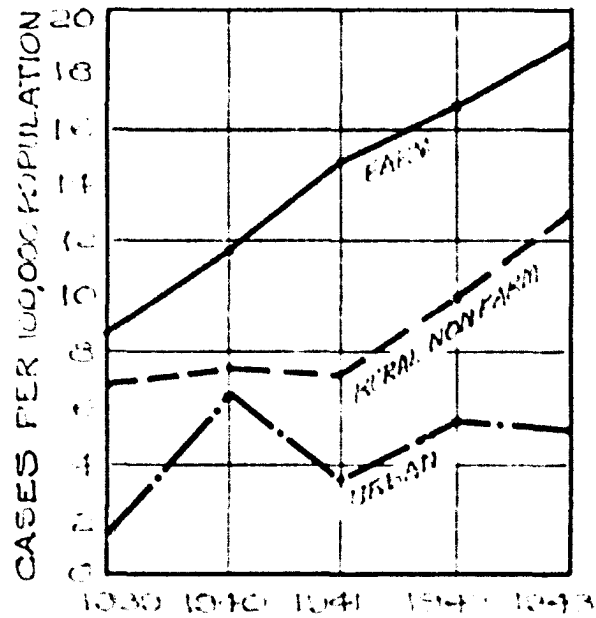
Table 13. (continued)

B. Incidence of disabling illness as indicated
by the National Health Survey, 1935-36¹

Diagnoses	: Rate : per : 1,000 : persons	: Days of dis- : ability per : person : canvassed
All diagnoses	171.0	9.9
Diseases of the respiratory system	50.9	1.48
Tuberculosis (including non-respiratory)	1.3	.32
Pneumonia (all forms)	4.7	.18
Tonsillitis (including tonsilectomies)	9.9	.14
Other diseases of respiratory system (colds, influenza, etc.)	35.0	.84
Communicable diseases		
Common communicable diseases of childhood	26.3	.55
Other	2.8	.13
Accidents	15.4	.75
Confinement	15.0	.38
Diseases of the digestive system	14.2	.851
Appendicitis (including appendectomies)	5.0	.20
Hernia	1.0	.094
Diseases of teeth, mouth, gums	.52	.017
Other diseases of digestive system	7.7	.54
Cardio-vascular-renal diseases	11.0	1.34
Rheumatism and allied diseases	5.9	.71
Nervous and mental diseases	5.4	1.02

¹ Source: Britten, Rollo H., Collins, Selwyn D., and Fitzgerald, James S.
Some general findings as to disease, accidents, and impairments
in urban areas. U.S. Public Health Reports 55:449. 1940.

Figure 6. Morbidity rates for brucellosis by type of locality, Iowa, 1939-1943¹



¹Source: Iowa State Department of Health. Biennial Report 1942/44. p. 28. 1944.

Table 14. Morbidity rates for brucellosis by
type of locality, Iowa, 1939-1943¹

Type of locality	Rate (Reported cases per 100,000 population)				
	1939	1940	1941	1942	1943
Farm	8.7	11.7	14.7	15.5	19.7
Places under 2,500	6.9	7.3	6.9	9.9	12.7
Places over 2,500	1.8	6.2	3.2	5.7	5.0
Packing house workers	95.0	335.0	175.0	310.0	270.0
State	6.8	10.3	10.5	13.0	13.7

¹Source: Iowa State Department of Health. Biennial Report
1942/44. p. 28. 1944.

Extent of Physical Defects in Selected Groups in
United States

There are relatively few data concerning the extent of physical defects in the United States, particularly with respect to rural populations.

The major source of information concerning the extent of physical defects among the population is the reports of physical examination of the Selective Service registrants, although these apply only to a selected age group of the male population. Data are not as yet generally available as to the rural-urban distribution of these registrants for the nation or within a state. A second source of information is the reports of physical examinations of selected farm families who are clients of the Farm Security Administration. The State Department of Health also has some data.

There may be present in the population physical defects which although not disabling in the sense of keeping people from carrying on their usual activities and though not requiring immediate care do have a bearing on need for medical and allied services. Indications are that there are many such physical defects which could be remedied or could have been remedied had action been taken early enough.

Physical defects among men examined for military service

One indication of the extent of health defects is the percentage of rejections from military service. Data are available from the Selective Service in World War II and from the draft of World War I.

Proportion of men rejected because of health defects. Approximately 45 per cent of the persons examined under Selective Service up to February 1, 1944, were rejected for physical and mental defects. During World War I 30 per cent were rejected.¹ Perrott points out that because of a variety of factors, such as differences in age composition, in examination standards and in technique of the examining physicians it is impossible to appraise the rejection rates in terms of relative health status of young men at the two times.² This conclusion is borne out by the fact that the rate of rejections for general military service among the first three million registrants examined under Selective Service in the period from November 1940 through September 1941, a peacetime period, was 52.8 per cent, in contrast to the figure of 45 per cent three years later.³ The data for rejections of men from military service during the two wars present no

¹Perrott, George St. J. Findings of selective service examinations. Milbank Memorial Fund Quart. 12:358. 1944.

²Ibid.

³U.S. Selective Service System. Causes of rejection and incidence of defects, an analysis of reports of physical examination from 21 selected states. Medical Statistics Bul. No. 2, Washington, National Headquarters, Selective Service. 1943. p. 3. It should be noted that the peacetime standards were higher than those later on during war time. Then too, many physically fit men enlisted. If they had gone through the Selective Service System there would have been a lower percentage of rejections. Further, the men who failed to meet the relatively strict standards then in force were not handicapped for civil life or for many kinds of non-combat services. Later, with changes in the physical standards, many were reclassified and selected. Nevertheless, the fact that there were so many rejections indicated that there were many men not in abundant health. It should also be noted that some of the rejections were due to moral or literate deficiencies rather than physical health. These were, however, less than five per cent of the total.

evidence of any improvement since World War I, according to an analysis reported by Perrott.¹

Causes for rejection from military service. The ten most frequent causes for rejection from military service among the men in World Wars I and II are given in Table 15.² The most important causes of rejection among persons examined in the Selective Service up to February 1, 1944, in order of frequency, are shown in Table 15. It is to be noted that mental disease caused about one-fifth of all rejections; syphilis slightly more than a tenth, musculo-skeletal defects and cardiovascular defects slightly under a tenth. Hernia, neurological defects, defects of the eyes and ears, mental deficiency and tuberculosis were next in importance.

Among the approximately three million registrants examined for the Selective Service in the period from November, 1940, through September 1941, who were rejected for general military service, the major causes of rejection were similar. In the order of their importance the four major causes for rejection were: tooth defects, eye defects, mental and nervous disorders, and cardiovascular conditions. These four types of defect accounted for nearly half of the rejections during this period. Next in importance were musculo-skeletal defects, hernia, venereal disease, ear, nose and throat defects, tuberculosis and other lung diseases, educational deficiencies, foot defects and underweight (See Table 15).

¹Perrott, op. cit., p. 353.

²Rejections during the two periods cannot be used for exact comparison of health status. See footnote 2, p. 93.

Table 15. Ten most frequent causes for rejection from military service in three groups of men, World Wars I and II

Type of defect	Percentage of all rejections by reason of physical or mental defects			
	World War II ¹		Peacetime ²	World War I ³
	(to Feb. 1, 1944)		(Nov. 1, 1940 to Sept. 30, 1941)	
Mental and neurological	18.9)--	10.4	3.9
Syphilis	7.0		5.9 ⁴	-
Musculo-skeletal	10.7		10.0	14.2
Cardiovascular	9.6		10.4	14.1
Hernia	8.3		8.9	5.6
Eyes	7.6		11.7	11.6
Ears	6.8		5.5 ⁵	4.6
Mental deficiency	5.0		3.2	4.1
Tuberculosis	4.3		3.8 ⁶	8.4
Underweight	3.4		2.9	7.4
Foot	-		3.0	7.1
Teeth	-		16.5	5.6

¹Perrott, George St. J. Findings of selective service examinations. Milbank Memorial Fund Quar. 12, no. 4:359. 1944.

²U.S. Selective Service. Causes of rejections and incidence of defects. Medical Statistics Bul. no. 2. Washington, National Headquarters, Selective Service. 1943. p. 6.

³Perrott, op. cit., p. 360.

⁴Includes all venereal disease.

⁵Includes ear, nose, throat.

⁶Includes tuberculosis and lung disease.

It is of interest to note the frequency of defects among all the men examined under Selective Service up to February 1, 1944, whether or not the defect caused rejection from general military service. Defects of the feet were most prevalent, the rate being 172 per 1,000 men examined. Flat feet were the chief defect in this group. Teeth defects were second, at 168 per 1,000 men, with missing teeth causing 36 per cent of the defects; dentures or need for dentures, 20 per cent; caries, 24 per cent; malocclusions and other dental defects, 20 per cent.¹

The rate of eye defects was 124 per 1,000 men. Of these 25 per cent were refractive errors and 23 per cent were partial or complete blindness. The fourth defect was musculo-skeletal defects, 114 per 1,000 men. The next six defects and their rates were: skin, 88; mouth and gums, 84; cardiovascular, 82; nose, 82; throat 82; and genitalia, 81.²

Comparative rejections among rural and urban selectees. Data from Selective Service examinations provide data for analyzing possible differences in health status of rural and urban young men. Some analyses have been published on national data. Thus far little information is available on a state basis.

Rejection rates by occupational groups among 18 and 19 year old selectees examined up to February 1, 1944, indicate that the highest rejection rates were among farmers, of whom around two-fifths were rejected

¹Perrott, op. cit., p. 361, 362.

²Ibid.

in contrast to 25.4 per cent of persons in all other occupations. The percentage of rejections in various groups were:¹

Farmers	41.1
Emergency workers and unemployed	37.7
Service workers	28.9
Laborers, except farm and mine	28.2
Students	22.2
Proprietors, clerical, sales and kindred workers	21.0
Craftsmen, foremen and kindred workers	20.4
All occupations	25.4

An analysis of a sample of approximately 20,000 reports of Selective Service rejections, representing a cross-section of registrants examined prior to May 31, 1941, indicated that of the first two million registrants going through the selective service approximately one-third (33.1 per cent) were from rural areas. Of these 61.9 per cent were qualified for general military service and 39.1 per cent were rejected, in contrast to 57.6 per cent of the urban group qualified and 42.4 per cent rejected, and 59 per cent of both groups accepted and 41 per cent rejected.²

Data for Iowa have not yet been released. However, Lt. Col. Robert S. Shale, State Medical Officer of the Iowa Selective Service System, states that the rate of rejections and causes were as high for rural as for urban registrants.³

¹Rowntree, Leonard G., McGill, K.W., and Edwards, T.I. Causes of rejections and the incidence of defects among 18 and 19 year old selective service registrants. J. Amer. Med'l. Assoc. 123:184. 1943. See also Perrott, George St. J. The physical status of young men, 1918 and 1941. Milbank Memorial Fund Quar. 19:364. 1944.

²U.S. Selective Service System. Analysis of reports of physical examinations: Medical Statistics Bul. No. 1. Washington, National Headquarters, Selective Service System. 1941. p. 7.

³Shane, Lt. Col. Robert S., State Medical Officer of Iowa Selective Service System. Des Moines, Iowa. Information on physical status of Iowa Selective Service registrants. Private communication. 1945.

Although proportionately fewer men from rural areas were accepted for general military service than from urban areas, there were but slightly fewer who were entirely disqualified for military service entirely. Of those from rural areas, 22.5 per cent were accepted for limited military service, compared with 18 per cent of those from urban areas qualified for limited military service and 19.9 per cent rural and 20.1 per cent urban disqualified entirely. In the total group 21.0 per cent qualified for limited service only and 20.0 per cent were disqualified for any military service.¹

The Hagerstown Study. In order to compare the findings of the physical examinations in the Selective Service System with the information concerning the same registrants when they were children, an analysis was made of the records of physical examinations of Hagerstown, Maryland, white school children made by the United States Public Health Service during the period 1922-28 and information regarding acceptance or rejection of white selectees who appeared before physicians of local draft boards No. 1 and 2 of Washington County, Maryland. Findings indicate that a relatively large number of the selectees who have been rejected because of defective dentation and vision already had given evidence of the same defects 15 years ago when they were in elementary school. Results of the study also suggested that growth as measured by weight, posture, and physicians' estimations of the state of malnutrition are crude predictive indexes of adult physical development. Among the conclusions it was stated that the

¹Ibid., p. 7.

...findings of this study seem to reinforce the views held by many that disease in adulthood is often brought about by the cumulative effects over a long period of time of many pathologic conditions, many incidents, some of which take place and are even perceived in early infancy. It is particularly disturbing to find that, in spite of knowing, for instance, which children in a community would grow up into physically handicapped adulthood, the health professions, the lay professions, and especially society as a whole has to date apparently failed to take full advantage of the knowledge.¹

Health status of Farm Security Administration families

Another indication of the extent of physical defects in a particular group is given by the data from the physical examination of 11,497 individuals in Farm Security Administration families in 1936-1941. Of the persons examined 96 per cent had physical defects. There was an average of 3.5 physical defects per person. Many of the physical defects found were preventable or remedial. The most prevalent defect was dental caries, found in 69 per cent of both the white people and negroes examined. Of those in the age group 16-30 years 84 per cent had dental caries. Of the white adults, age 15 or over, 55 per cent had defective tonsils and 58 per cent of the negroes; among the children up to 15 years of age, 57 per cent of the white and 70 per cent of the negroes had this defect.

Among adults the defects most frequently found were first and second degree lacerations, the result of childbirth injuries, among

¹Ciocco, Antonio, Klein, Harry, and Palmer, Carroll E. Child health and the selective service. U.S. Public Health Reports 56: 2374. 1941.

42 per cent of the white wives and 43 per cent of the negro wives; varicose veins among 14 per cent of the white adults and hemorrhoids among 15 per cent; abnormal blood pressure among 13 per cent of the husbands and wives.¹

It must be remembered that the data reported apply to a low income rural group in a selected area and are not applicable to the total population.

Health defects among population of Iowa

Very few data with reference to health defects in a cross section of Iowa population are available.² More research is needed here. One study may be cited. During the biennium July 1, 1942 to June 30, 1944, an oral survey sponsored by the State Department of Health was made of over 6,000 high school pupils in eight Iowa counties. Results indicate that the average Iowa high school student of 15.5 years has 2.1 carious or decayed teeth and 3.1 filled teeth and that every second boy or girl has lost one permanent tooth.³

¹ Cited in Brown, Arline Martin. Medical service plans for Farm Security Administration families. Unpublished U.S. Thesis. Ames, Iowa, Iowa State College Library. 1943. p. 36. See also U.S. Farm Security Administration. Annual report, office of chief medical officer 1940/41:180-183. 1941. See also Dorn, Harold F. Rural health and public health programs. Rural Sociol. 7, no. 1:26, 27. 1942.

² Doubtless there will be data available later concerning Selective Service examinations in Iowa.

³ Iowa. State Department of Health. Biennial report. 1942/44. 1944. p. 62.

Birthrates with Special Reference to Rural Iowa

The birthrate and its trend have a bearing on need for medical and allied services. A high birth rate signifies need for pre-natal and post-natal services of physicians, nurses, and hospitals. Changes in rate will indicate changed need for these health services and long-time change in the population age structure, the effect of which has already been discussed.

Trend in birth rate

Following the general pattern of the trend of birth rate for the United States as a whole, as shown in Table 15, the birth rate in Iowa declined from 19.7 in 1925¹ to a low of 16.0 births per 1,000 estimated population in 1933, during the depression years, followed by a general rise to 20.0 births per 1,000 estimated population in 1942. The rapid rate of increase in birth rate after 1940 very likely was due to the impact of the war and probably indicates only a temporary rise. The birth rate for 1942 was the highest recorded for the birth registration states since 1925.² The largest percentage of increase in 1942 over 1941 was 25.9 per cent in Connecticut; the lowest 0.8 per cent in South Carolina. For Iowa the percentage of increase was 8.1 per cent.³

¹Iowa entered the birth-registration area of the United States Bureau of the Census in 1923.

²Every state except New Mexico was included in the report.

³U.S. Bur. of Census. Vital Statistics-Special Reports, 1942. Vol. 19, no. 1:3,4. 1944.

Table 16. Crude birth rates for specified years in Iowa, the West North Central States and the United States¹

Year	Crude birth rate (Live births per 1,000 population)		
	Iowa	West North Central States	Registration States
1942	20.0	20.0	21.0
1941	18.5	18.3	18.9
1940	17.7	17.4	17.9
1939	17.4	17.0	17.3
1938	17.4	17.1	17.6
1937	17.0	16.6	17.1
1936	17.1	16.8	16.7
1935	16.4	16.7	16.9
1934	17.0	17.3	17.2
1933	16.0	16.5	16.6
1932	16.3	17.2	17.4
1931	17.0	17.6 ²	18.0 ²
1930	17.3	18.0 ²	18.9 ²
1925	19.7	26.7 ²	21.3 ²
1928	-	23.1 ²	23.7 ²

¹Source: U.S. Bur. of Census. Vital Statistics-Special Reports, 1942. Vol. 20, no. 16:190. 1944.

²Includes Minnesota, Nebraska, Kansas in 1920; Iowa, Nebraska, North Dakota, Kansas in 1925; Minnesota, Iowa, Missouri, North Dakota, and Kansas in 1931 and 1932.

Among the separate geographic divisions a similar pattern is shown, in that a decline occurred in birth rate from 1925 to the mid-thirties, followed by a rise. Minor differences occurred among various sections of the country. In general, the rates in the North are lower than those in the South.

When the states are arrayed from high to low in order of birth rates, the rate for Iowa in 1942 is closer to the low end of the range. In fact, the birth rate for Iowa has been below that for the United States as a whole for all the years in which there are records except for 1939, when it was approximately the same. The birth rates for Iowa have been fairly near those for the West North Central States.¹

Birth rates in rural and urban areas in Iowa

The specific birth rate for women of child-bearing age gives a better indication of birth performance or fertility than does the crude birth rate for the population as a whole. Differences between crude birth rates may be due to differences in age structure of the population rather

¹The first nation-wide test of completeness of birth registration was made by the Bureau of the Census in 1940. Records of births registered during the four-month period from December, 1939, through March, 1940, were matched with the number of infants under four months enumerated as of April 1, 1940 and with those born during those four months whose deaths were registered occurring prior to April 1, 1940. It was found that registration of births in the United States was 92.5 per cent complete. For Iowa it was 94.6 per cent complete. (U.S. Bur. of Census. Vital Statistics of the United States, 1940. Part I. p. 4. 1943.)

than to differences in fertility. In Iowa in 1940 the birth rate per 1,000 women between 10 and 54 years of age was 54.0. In general, the rate was relatively high among rural women, the birth rate being 57.9 per 1,000 females of child-bearing age. As indicated in Table 17 this was approximately 15 per cent higher than birth rates in Iowa urban areas of various sizes. For every age group over 20 years the birth rate per 1,000 rural women was higher than the average rate for that age group for the State as a whole.

The pattern of specific birth rates in Iowa communities in 1940, as shown in Table 17, was similar to that for the United States as a whole although the differentials between places of various sizes were not the same. Table 17 indicates that in both Iowa and the United States the rates were highest in rural areas and decreased as the size of community increased. In Iowa, however, the specific birth rates fell more rapidly than in the United States as a whole. In Iowa the specific birth rates in rural areas and places from 2,500 to 10,000 were slightly lower than for similar areas in the United States; in places over 10,000 they were higher.

Birth rates in specific age groups, as shown in Table 17, were highest in rural areas in both Iowa and the United States. There was some variation in birth rates of specific age groups in places of various sizes.

As mentioned earlier, data concerning births according to residence

Table 17. Specific birth rates by age of mothers and size of locality, Iowa and United States, 1940¹

Rates are numbers of births to women in a specified group per 1,000 female population of that group, enumerated as of April 1, 1940

Locality	Urban					
	Whole area	Rural	Cities of 2500-10,000	Cities of 10,000-25,000	Cities of 25,000-100,000	Cities of 100,000 or more
	:	:	:	:	:	:
All ages	:	:	:	:	:	:
Iowa	54.0	57.9	50.0	50.0	48.9	48.6
United States	52.0	59.8	56.9	49.5	47.5	42.8
10 to 14 years	:	:	:	:	:	:
Iowa	0.2	0.1	0.2	0.3	0.3	0.0
United States	0.6	0.7	0.6	0.4	0.5	0.4
15 to 19 years	:	:	:	:	:	:
Iowa	40.4	38.7	41.4	47.9	45.2	51.3
United States	49.9	57.1	55.6	43.7	43.3	36.2
20 to 24 years	:	:	:	:	:	:
Iowa	134.6	146.4	123.5	122.9	124.5	113.3
United States	125.3	147.3	137.1	117.6	112.4	100.8
25 to 29 years	:	:	:	:	:	:
Iowa	131.1	149.6	115.6	114.3	110.5	106.6
United States	114.4	128.2	121.7	111.3	107.4	99.8
30 to 34 years	:	:	:	:	:	:
Iowa	86.1	101.9	77.2	67.0	67.5	84.0
United States	77.4	90.8	79.8	73.7	70.1	65.3
35 to 39 years	:	:	:	:	:	:
Iowa	46.9	57.5	38.8	32.8	34.6	32.1
United States	41.9	56.9	42.5	35.7	33.5	29.9
40 to 44 years	:	:	:	:	:	:
Iowa	16.5	21.1	14.3	11.7	9.8	8.9
United States	13.9	21.8	13.5	10.6	9.7	8.0
45 to 49 years	:	:	:	:	:	:
Iowa	1.6	2.4	1.3	0.2	0.6	0.5
United States	1.3	2.3	.2	0.9	0.7	0.6
50 to 54 years	:	:	:	:	:	:
Iowa	0.0	0.0	0.0	0.0	0.0	0.0
United States	0.1	0.1	0.1	0.0	0.0	0.0

¹Source: (1) U.S. Bur. of Census. Vital statistics rates in the United States, 1900-1940. p. 685-697. 1943. and (2) U.S. Bur. of Census, Vital Statistics, 1939/1940. Part II. p. 29, 31. 1943.

of the mothers were not available for the country as a whole until 1939. Even then no separation was made between rural farm and rural non-farm communities. Because of this fact some other indication of fertility needs to be found. One such measure is the ratio of children under 5 per 1,000 women of ages 15 to 44.¹ On this basis, the ratio in Iowa in 1940 was 36.0. The ratio in rural areas was 62.8 per cent greater than in urban communities, 550 compared with 290. In Iowa in both rural and urban areas, the ratio dropped from 1930 to 1940. The ratio for the state in 1930 was 400; in rural areas, 560, and in urban, 320.²

Relation of birth rate to need for health service

These figures indicate that, other factors being the same, there is relatively greater need for maternal and infant care in rural areas of Iowa than in urban. There is need for prenatal and postnatal service, for infant care, for services for young children. Health examinations, immunization, and education concerning child care are among the primary needs, as well as provision of adequate nutrition and an environment tending to prevent contagious disease.

¹The measure used by the National Resources Committee in 1937 was the ratio of children under five years of age per 1,000 women aged 20 to 44 years in communities of various sizes in 1930.

²Computed from data in U.S. 16th Census:1940. Population 2:861. 1943.

Summary and Conclusions

In order to measure the extent of need for medical care and allied facilities among a people a picture of their health status is needed. An adequate measure of health status doubtless can be obtained only through complete physical and mental examination of a cross section of the population. In the absence of such data fragmentary evidence must be used, such as data on mortality, morbidity, extent of physical defects, and birth rates.

The limitation of such data, however, must be recognized. Precautions must be taken in order to understand what information they actually provide, to recognize inadequacies and gaps in the information, and to avoid misinterpretation. It must be remembered, for example, that comparability of data for different communities or for the same community at different times is affected by various factors, especially age composition of the population.

Specific rates and adjusted mortality rates give a better picture of health status than do crude rates since the latter are affected by such factors as age distribution of the population. Infant mortality rates, the mortality rate of children under five years of age and maternal death rates are considered especially valuable as an index of status of health.

Surveys of samples of the population by canvassing and physical examination of selected groups give some picture of the rate of morbidity and health defects. It must be remembered, however, that all of these indices offer but fragmentary evidence of status of health. They are at best crude measurements.

The crude mortality rate of approximately 10 deaths per 1,000 population in Iowa has been fairly stable in the past 20 years and fairly close to the rate for the West North Central States and for the United States as a whole. The crude rate in Iowa was the same in 1940 as in 1930; the age-adjusted rate showed a slight decline. The specific mortality rate for each age group in Iowa declined except for the group 75-84 years. The infant and maternal mortality rates declined markedly. In 1940 these were about 34 and two, respectively, per 1,000 live births.

Total mortality rates, whether crude or age-adjusted, show Iowa in a favorable position with relation to other states. This is particularly true of the infant and maternal mortality rates. Among the states, Iowa is in the quartile having the lowest mortality rates both for infants and for children under five. In general, age-adjusted mortality rates in Iowa are slightly lower than mortality rates for the United States as a whole.

The highest mortality rates in Iowa, whether crude, age-readjusted, infant, or maternal mortality rates or mortality rates from other specific causes are considered, are highest in places from 2,500 to 10,000. The differential is less, however, with age-adjusted rates than with crude rates. This is true not only in Iowa but in the United States as a whole. Rural areas in Iowa have lower mortality rates for all age groups as well as the total than is true in the United States as a whole. Places of 2,500 to 10,000 have less favorable position: crude rates in places of this size are higher than for the nation though the age-adjusted rates are slightly lower than for the nation. Nearly half of the states have lower mortality rates than Iowa for infants and children under five in places of this size.

Rural areas of Iowa, on the other hand, rank highest among the states in this respect.

The question remains as to why mortality rates are higher in places between 2,500 and 10,000 in population. A part of the answer is per capita income as discussed in the next section. Another part is the availability of facilities for medical and allied services. Another factor is that the retirement of persons with chronic difficulties from farming helps to maintain the superior health status of the country which is largely responsible for the better rural showing. Factors affecting demand for and supply of medical and allied services are discussed further in the following chapter and in Part III.

Data are not available concerning health status of the population in villages under 2,500. It is likely that mortality rates, for example, are higher in these places as well as in places slightly larger. Separation of rural vital statistics into farm and non-farm classes would be helpful in making such comparisons.

These data indicate that the greatest relative need for medical care and allied health services in Iowa lies in places of 2,500 to 10,000, insofar as these needs are reflected by general mortality rates, infant and maternal mortality rates, and the specific death rates for eight major causes of death.

Principal causes of death in 1940 in Iowa as well as the United States were diseases of the heart, cancer and other malignant tumors, intracranial lesion of vascular origin, nephritis, and pneumonia and influenza.

The principal causes vary with age groups. Pneumonia and influenza are

chief among causes for ages under 15 and over 65 years. For infants the other main causes of death are premature birth, injury at birth, congenital malformation and other diseases peculiar to the first year of life.

Accidental burns and drowning claim many lives of children from one to four years of age. From the age of one to 44 motor-vehicle accidents are among the chief causes of death. Among children five to 14 deaths from appendicitis and diseases of the ears, nose and throat are high. For ages 15 to 24 maternal deaths are among the highest five causes. Tuberculosis is particularly important from age 15 to 44.

The general trend of mortality rate from specific causes indicates probable greater future need for services of physicians and hospitals for diseases characteristic of old age, such as heart disease. Facilities for the diagnosis and treatment of cancer appear to be an important need in Iowa, particularly in small towns. Facilities for the diagnosis and treatment of tuberculosis and syphilis also are important although relatively less so in Iowa than in the United States in general.

The principal causes of death and the principal causes of morbidity are not the same. Little data on morbidity are available for Iowa. According to two national surveys the principal causes of illness in the United States are respiratory diseases, digestive ailments, accidents, and communicable diseases. Among major defects are tooth defects, eye defects, mental and nervous disorders and cardio-vascular difficulties. There is evidence that in the United States as a whole from two to four per cent of the population are unable at a given time to work because of illness.

111.

On the average, families in the United States have approximately four cases of disabling illness a year. Individuals in general are unable because of illness to carry on their usual activities an average of seven to nine days per year.

The frequency, type and duration of illness vary with age. The incidence is highest for children under five and persons over 65 years of age; it is lowest for persons from 15 to 19 years. The duration of illness is in general shortest for persons under 15 and longest for persons over 65.

Rejections among Selective Service registrants indicate many defects among young men of the United States. Approximately one-half of those examined have been rejected from military service. Among farmers a larger per cent of men have been rejected than in any other occupational group. Examinations of Farm Security borrowers and their families and various examinations of school children also have indicated the presence of many defects. In many cases these are defects, e.g., dental defects, which are easily remedied and could easily have been prevented had attention been given to them earlier.

The general birth rate in Iowa in 1940 was about 18 live births per 1,000 population. Birth rates, both crude rates and specific rates per 1,000 women of child-bearing age, are higher in rural than in urban areas in Iowa. These data indicate that, other factors being the same, there is relatively greater need for maternal and infant care in rural areas in Iowa than in urban. Possibly health examinations, immunization programs, and education concerning child care are among primary needs, as well as the provision of adequate nutrition and an environment to

prevent contagious diseases. There is need for immunization of live-stock against brucellosis and for pasteurization of milk.

In general, the data presented in this chapter indicate a relatively higher status of health in rural areas of Iowa than in urban. The lowest status of health, insofar as the status is reflected by data of this type, is in towns and cities from 2,500 to 10,000 in population. The greatest need for medical and allied services very likely is in these places. There is indicated need for research as to why the status of health is lower in places of 2,500 to 10,000.

There is also need for data concerning the health status of non-farm rural population as separated from farm population. The data on health status need to be related to the supply of services and effective demand for them before conclusions as to adequacy of services can be shown. Attention is given to this question in Part III.

OTHER FACTORS AFFECTING DEMAND
FOR MEDICAL AND ALLIED HEALTH SERVICES
AND CERTAIN EVIDENCE OF DEMAND

As indicated earlier, measurements of the demand for specific medical and allied health services are difficult to make. There is, however, evidence to indicate the extent and type of demand. In this chapter is explored some of this evidence. The chapter deals mainly with important factors affecting demand.

The preceding chapter discussed the factors of status of health and birth rate. Price as a factor is considered in Part IV along with method of payment. The present chapter includes the following sections: (a) population background as a factor determining need for health services; (b) factors affecting sense of need; (c) use of available health services; (d) consumer income as a factor affecting demand; (e) relative preference for health services over other commodities; and (f) community income as a factor affecting demand.

Population Background of Need for
Health Services in Iowa

Various characteristics of the population have a bearing on the need for specific health services. It is difficult to separate the factors in this complex in order to deduce their effect on need for health services.

Their relationship is organic. The analysis is complicated further by the many factors in the environment affecting health needs of an individual or community.

In this section will be considered briefly (1) size, (2) distribution by type of community, and (3) age distribution of the population of Iowa. Certain other population factors and characteristics which indirectly affect the need and demand for medical care and allied services are not included. Among these are marital status, education, and migration. Race is excluded for the reason that it is largely an income factor insofar as it relates to health services. Birthrates and mortality rates already have been discussed.

Size of population

It goes without saying that the larger the population, other things being equal, the greater the need for specific medical and allied services. The rate of growth of the population must be considered in long range planning by the community for supplying these services. One cannot deduce, however, that an increasing population necessarily is accompanied by need for a corresponding increase of doctors or nurses, for example, in order to meet health needs. Needs may change. The structure of the population may change, thus changing the needs. The activities and way of living of the population may become altered. Then, too, the means of supplying the needs may change. New methods may be introduced. Old methods may be used more effectively. Thus it cannot be assumed that the size of a community alone determines its need for health services.

The population of Iowa according to the 1940 census was slightly over 2.5 million, as shown in Table 18. This represents an increase of 2.7 per cent over the population of Iowa in 1930.

Distribution of population by size of locality

The need for some medical and allied services varies according to whether the population is rural or urban and according to the relative size of the locality. For example, the type of services needed in order to insure an adequate and safe supply of water will be different in the village from that in the city. Then, too, the distribution of facilities needed in any type of community, for example general practitioners, depends upon the age and sex distribution of the population.

In 1940, 57 per cent of the population of Iowa was rural. This represents a decrease of 2.5 per cent in the proportion of rural population between 1930 and 1940. Over a third of the population of the state lived on farms. Over a fifth lived in villages or small towns of less than 2,500. The number of farm people was 5 per cent less than it had been in 1930; the number of rural non-farm people was 2 per cent greater. The urban people increased to 10.7 per cent. The increase was not uniform in cities of various sizes, however. There was a fairly large increase of population in cities of 5,000 to 10,000 and in cities over 25,000 whereas cities of 2,500 to 5,000 decreased slightly in population as did those of 10,000 to 25,000 (See Table 18). In rural towns, the population remained fairly stable. Apparently the major net shift in population in Iowa was from farm and unincorporated places to cities from 5,000 to 10,000 and to those over 25,000 in population (See Table 18).

Table 13. Population by type of locality, Iowa,
1930 and 1940A. Rural farm, rural non-farm, urban¹

Year	Rural			Urban	Total
	Farm	Non-farm	Total		
Number					
1930	964,659	526,983	1,491,647	979,292	2,470,939
1940	916,738	537,269	1,454,037	1,084,231	2,538,268
Per cent					
1930	59.0	21.3	60.4		100.0
1940	36.1	21.2	57.3		100.0
Increase (1930-1940)					
Number	47,891	10,281	37,610	104,939	67,329
Per cent	-5.0	2.0	-2.5	10.7	2.7

B. Rural and urban municipalities

Type and size of community	1930			1940		
	Number	Population		Number	Population	
	of places	Number	Per cent ²	of places	Number ¹	Per cent ²
Rural		1,491,647	60.4		1,454,037	57.3
Unincorporated		1,023,725	41.8		982,989	38.7
Incorporated						
Under 1,000	713	278,513	11.3	715	279,500	11.0
1,000-2,500	123	186,409	7.5	127	191,549	7.5
Urban		979,292	39.6		1,084,231	42.7
2,500-5,000	46	168,650	6.8	45	163,400	6.4
5,000-10,000	14	94,173	3.8	23	149,498	5.9
10,000-25,000	11	167,405	6.8	10	153,165	6.0
25,000-100,000	9	406,505	16.4	10	453,349	18.1
100,000 or more	1	142,559	5.8	1	159,819	6.3
Total		2,470,939	100.0		2,538,268	100.0

¹ Source: U.S. 16th Census: 1940. Population 2:847. 1943.² Calculated.

It cannot be assumed of course that because there are more people in rural than in urban areas of Iowa, there should be relatively more health facilities in the former. Facilities located in urban areas may be readily accessible to rural population. The factor of distance is important. However, data presented in Part III indicate that the supply of physicians and general hospitals readily accessible to some rural areas in Iowa does not reach the standard suggested as adequate.

Age distribution of population

Differences in mortality rates and incidence and types of disability among various age groups have been discussed earlier. It is apparent that age structure of the population affects the need for medical and allied services. According to some authorities age is more important than most other characteristics of the population in affecting these needs.¹

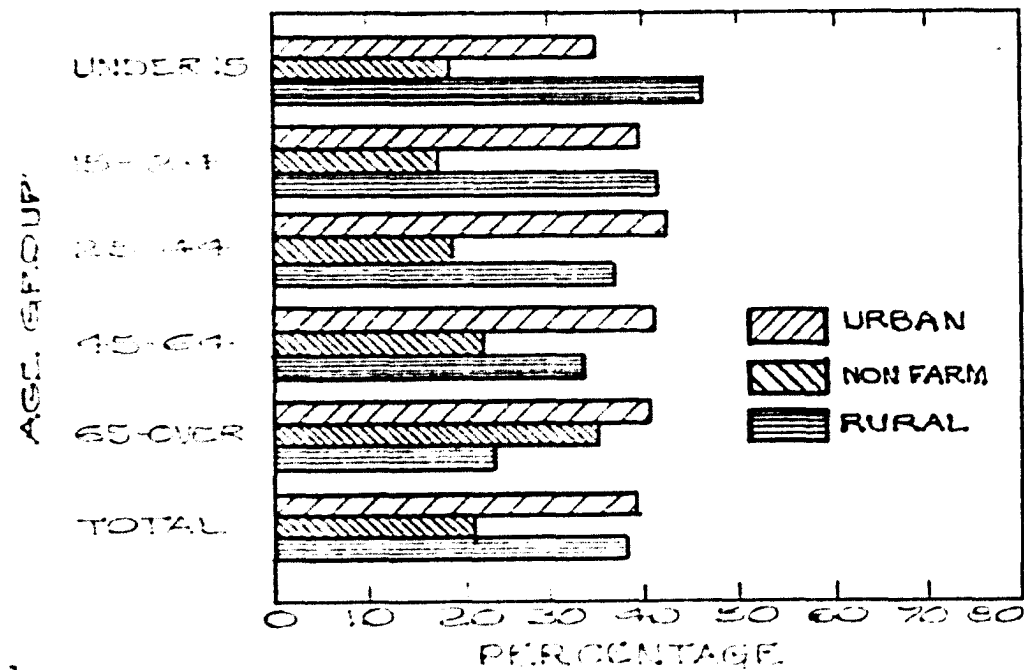
¹Warren Thompson states: "The chief of these changes in composition (of population) are due basically to the declining birthrate, although for the next two or three decades the proportion of persons at the older ages will also show the effects of the large influx of immigrants in the decade preceding the first World War." For the United States as a whole, Thompson has estimated that the number of persons over 65 in population will more than double between 1940 and 1970, increasing from about 8.4 millions in 1940 to about 18 million in 1970 and the proportion will increase from about 8.3 per cent of the total population to about 11.9 per cent. "The 20-29 age group will lose about 3 per cent in the next forty years -- declining from about 17.2 per cent to 14.2 per cent of the total population -- the 45-64 group will gain about 5.4 per cent -- rising from about 20.4 per cent to 25.8 per cent." Thompson and Whelpton estimate that "by 1980 the number of persons in middle and old age (45 years and over) would be 120 per cent larger than in 1930 (and children under 5 years 13 per cent fewer) assuming no increase of the population through immigration, a moderate decline in the birth rate, and a gain of approximately eight years in the expectation of life at birth." (Thompson, Warren S. Outstanding population trends affecting problems of social welfare. Milbank Memorial Fund Quar. 18:192, 195, 196. 1940.)

Status and trend of age composition of Iowa population. Following the general trend of population change in the United States as a whole there were in proportion fewer children in Iowa in 1940 than in 1930 and more people over age 65, as indicated in Figure 7 and Table 19. Slightly less than a quarter of the population of Iowa in 1940 was composed of children under 15 years of age, as contrasted with more than a quarter in 1930. The proportion of adults of the age group 15 -- 44 stayed about the same, 45 per cent. The age group 45-64 increased from slightly under one-fifth of the total to slightly over that fraction.

In rural areas especially the proportion of children under 15 years of age was less in 1940 than it had been 10 years earlier. In 1930 about 30 per cent of the rural population was of this age group; in 1940 slightly over one-fourth. The proportion of the populations of the age groups 15-24 years and 25-44 years stayed much the same, about 17 and 26 per cent respectively. The proportion of rural people in the older age groups, necessarily, therefore, increased somewhat during the period. The change was from 18 to 21 per cent for the age group 45-64 years and seven to nine per cent for the group 65 years or more. Changes in the age structure of Iowa urban population were of similar direction and magnitude, as indicated in Table 19.

In comparing the age distribution of population in rural Iowa to the age distribution of population in urban areas of Iowa, it is well to bear in mind that nearly three-fifths of the total population of the state is rural. The farm population constitutes over one-third and the rural non-farm over one-fifth of the total population. There are relatively more

Figure 7. Percentage of population in various age groups, rural and urban, Iowa, 1940¹



¹ Source: U.S. 16th Census. Population, 2:851-854. 1943.

Table 19. Age distribution of population by type of locality, Iowa, 1930 and 1940

Age group	State	Urban	Rural		
			Total	non-farm	Rural farm
A. Number ¹					
1930					
Under 15 years	699,060	244,964	454,096	134,625	319,473
15-24 years	424,709	166,187	258,522	80,655	177,867
25-44 years	690,782	296,740	394,042	133,313	260,729
45-64 years	470,907	195,328	275,079	112,194	162,885
65 years & over	185,481	75,573	109,908	66,203	43,705
Total	2,470,939	979,292	1,491,647	526,988	964,659
1940					
Under 15 years	623,850	238,270	385,580	127,353	258,227
15-24 years	443,131	188,203	254,928	84,707	170,221
24-44 years	706,274	323,544	382,730	139,331	244,399
45-64 years	537,246	234,664	302,582	115,535	187,247
65 years & over	227,767	99,550	128,217	71,543	56,674
Total	2,538,268	1,084,231	1,454,037	537,259	916,788
B. Percentage of population in each age group, by type of community					
1930					
Under 15 years	28.29	25.01	30.44	25.55	33.12
15-24 years	17.19	16.97	17.33	15.30	18.44
25-44 years	27.95	30.30	26.42	25.30	27.03
45-64 years	19.06	20.00	18.44	21.29	16.88
65 years & over	7.51	7.72	7.37	12.56	4.53
Total	100.00	100.00	100.00	100.00	100.00
1940					
Under 15 years	24.58	21.98	26.52	23.70	28.17
15-24 years	17.46	17.36	17.53	15.77	18.57
25-44 years	27.83	29.34	26.32	25.74	26.66
45-64 years	21.16	21.64	20.81	21.47	20.42
65 years & over	8.97	9.18	8.82	13.32	6.18
Total	100.00	100.00	100.00	100.00	100.00

¹Source: U.S. 16th Census. Population, 2:851-854. 1943.²Calculated from data in Part A.

Table 19. (continued)

Age group	State	Urban	Rural		
			Total	non-farm	farm
C. Percentage in each type of community, by age groups ²					
1930					
Under 15 years	100.00	35.04	64.96	19.23	45.70
15-24 years	100.00	39.13	60.87	18.99	41.88
25-44 years	100.00	42.96	57.04	19.30	37.74
45-64 years	100.00	41.59	58.41	23.82	34.59
65 years & over	100.00	40.74	59.26	35.69	23.57
Total	100.00	39.63	60.37	21.33	39.04
1940					
Under 15 years	100.00	38.19	61.81	20.41	41.40
15-24 years	100.00	42.47	57.53	19.12	38.41
25-44 years	100.00	45.81	54.19	19.59	34.60
45-64 years	100.00	43.88	56.12	21.47	34.65
65 years & over	100.00	43.71	56.29	31.41	24.88
Total	100.00	42.72	57.28	21.17	36.11

children under 15 years of age in farm areas than in rural non-farm and urban localities, over two-fifths of all children living on farms, whereas one-fifth live in rural non-farm localities and less than two-fifths in places over 2,500 in population.

There are also slightly more young people of age 15-24 on farms in proportion to those living in small towns and cities. The farm population has slightly smaller proportion of the age groups from 45 to 64.

There are relatively fewer old people, age 65 years or over, on farms than might be expected from the proportion of total population living on farms. About one-fourth of persons of this age group live on farms, in contrast to about two-fifths of all ages living on farms. This age group comprises about the same proportion of population in urban areas that it does of total state population, about two-fifths. Many older persons retire to small towns. Rural non-farm localities have nearly a third of the persons in Iowa of this age group, in contrast to a fifth of the total population of the state. The pattern of age groups among localities of various types was much the same in 1930.

Effect of age distribution of the population upon needs for medical care and allied services. The nature of illness at various ages needs to be compared with the age distribution of the population, both present and estimated future population. One attempt to estimate the effects of this combination has been made by Perrott and Holland, who applied to the age specific frequency and disability rates of illness observed in the National Health Survey the population figures for 1980 as estimated by Kappinos.¹ They estimated that:

¹Method described in Perrott, George St. J. and Holland, Dorothy P. Population trends and programs of public health. Milbank Memorial Fund Quar. 18:362, 363.

If the number of disabling illnesses due to these specific causes increased at the rate of growth of the total population, a 12 per cent increase would represent the change between 1935 and 1980. However, the total increase in this period would amount to 56 per cent in cancer cases, 51 per cent in illnesses due to the degenerative diseases, and 41 per cent in illnesses due to rheumatism, on the basis of estimates which take into account the age specific frequency rate of illness due to these causes. In previous and mental disease, the total increase would amount to 23 per cent. On the other hand, the changed age structure of the population would result in no material increase in illnesses due to diseases of the respiratory system (exclusive of pneumonia, tonsillitis, and respiratory tuberculosis). Illnesses due to the communicable diseases (in the classification used here, largely those of childhood, tonsillitis, and disabilities associated with the puerperal state, would be fewer in number in 1980 than in 1935, due to the increase in births and in the child population.¹

When the average age specific rates of illness of all causes were applied to the estimated population in 1980 it was found by Perrott and Holland that:

The total number of disabling illnesses would show no excess above the number expected on the basis of population growth. However, the total days of disability accruing from illnesses of this category would increase 31 per cent as a result of changing age composition, compared with a 12 per cent increase in the total population.²

Perrott and Holland estimated that the aging of the population would tend to increase the number of physicians and private duty nurses and general hospital beds needed for a given case load. In the National Health Survey the diseases occurring more frequently in childhood and early adult life, although they accounted for a larger percentage of cases attended by

¹Ibid., p. 388, 369. It is obvious that past trends cannot be projected into the future without taking into consideration new conditions which may arise to change these trends.

²Ibid., p. 369.

physicians and necessitating hospital beds, represented a smaller percentage of time involved in these services than did the diseases occurring more frequently in older age groups. This was due to the fact that the former were largely acute illnesses of short duration, e.g., colds, whereas the latter were largely chronic, e.g., heart defects.

Perrott and Holland's estimates were that as a result of the aging of the population between 1935 and 1980 there would be necessary, in order to maintain medical care at its present standards, an increase of 8¹ to 11² per cent more in the number of physicians' services than the percentage increase in population and an increase of hospital days of care (exclusive of patient days for the tubercular and mentally diseased) of 7 to 12 per cent.³

The data on age composition of the population of Iowa, reflecting the trend of the population change in the United States as a whole toward a relatively larger proportion of old people than at present, indicate future need in both rural and urban areas for more services related to older people. The data indicate that, other factors remaining the same, it is likely that illnesses characteristic of young and middle aged adults are similar in rural and urban areas. For the treatment and control of illnesses apparently more common among children, such as respiratory diseases and contagious diseases, the larger proportion of children in rural areas indicates a greater relative need for services relating to these in rural areas than in urban.

¹Estimated on the basis of data of the Committee on the Costs of Medical Care.

²Estimated on the basis of data of the National Health Survey.

³Perrott and Holland, op. cit., p. 71-72, 79-80.

Unpredictability and unevenness of incidence of need for medical and allied health services

As indicated in Part I, the incidence of need for health services is both unpredictable and uneven. It was reported by the Metropolitan Life Insurance Company in a study of its field staff that:

Expenditures of individual families show extreme variation from the average. If families at about the same income level are divided into three equal groups according to the amount they spend for medical care, it will be found that the cost to the third having the lowest expenditures is negligible. The cost to the middle third is still less than the average and is a sum that can be met without a strain on the budget. But for the third having the highest bills, the cost becomes very heavy.¹

The Consumers Purchases Study in 1935-36 showed a great variability in expenditures for medical care. It showed that some families spent nothing; others spent \$200 or more. At each income level a large proportion of the families spent comparatively little for medical care while a small proportion had extremely high expenditures. Some low income families were likely to have outlays for health as large as some high income families have. For example, in the Middle Atlantic and North Central region, although the average expenditures for health services of all village families of the income group \$500-\$729 was \$33, or five per cent of their income, three per cent of the families spent over a third of their income for these services.² In this income group 76 per cent

¹U.S. Dept. of Agr. Bur. of Human Nutrition and Home Economics. What families spend for medical care. Washington, The Bureau. Mimeo. p. 10. 1944.

²Hollingsworth and others, op. cit., p. 2.

of the families spent nothing or less than \$40; 20 per cent spent between \$40 and \$199; 3 per cent \$200 or more.¹ The same pattern is present in other groups. For example, of those families with incomes of \$3000-3999, about half had expenditures under \$100, two-fifths from \$100 to \$299, and the remaining one-tenth had an outlay of \$300 or more.²

In the survey conducted by the Metropolitan Life Insurance Company among its field staff in 1930 the health expenditures varied from zero to \$1,000. The unevenness of incidence of health expenditure is indicated by the fact that 30 per cent of the 8,199 families reporting expenditures over \$100 spent 75 per cent of the combined expenditures of all families.³ None of the families were in rural areas or in towns under 5,000 in population.

Among a selected group of 188 Iowa farm families in 1943 the expenditures for medical and allied health services were \$3 for one family of five people with a total net income of \$8,948 while another family of the same size and with total net income of \$7,861 spent \$991. Over a period of years the health expenditures of most of the families included in this study showed a great variation. For one family the health expenditures were \$2 in 1936 and \$649 in 1941.⁴

¹Hollingsworth and others, op. cit., p. 2.

²Ibid., p.8.

³Armstrong, Douglas B., Dublin, Louis L., and Steele, Elizabeth J. The cost of medical care: a study of costs in the families of the field employees of the Metropolitan Life Insurance Company. New York, Metropolitan Life Insurance Co. 1934. p. 13.

⁴The amounts shown for dental services and hospitalization, which are services likely to be postponed, are too small and too infrequent in the accounts of these families to give a picture of variability and urgency of need for health services from year to year. Thus the accounts show no different picture than can be obtained from the Consumers Purchase Study.

Among 276 client families of the Farm Security Administration in Iowa in 1944 the amounts paid to general physicians ranged from \$1.00 to \$310; the amounts to surgeons, from \$25.00 to \$400.00; to hospitals, from \$5.00 to \$452.00; and to dentists, from \$1.00 to \$200.00.¹

Factors Affecting Sense of Need for Medical and Allied Health Services

An important factor affecting demand for medical and allied health services is of course a sense of need for the services. Superstitions and fallacies concerning health and health needs doubtless are more widespread than might be expected. Health education evidently has lagged behind scientific progress. The layman has kept and also acquired many misunderstandings. Some are based on family tradition and local custom. Others come from faulty education and the effects of advertising.

An analysis of questionnaire answered by visitors at the New York World's Fair in 1939 and the San Francisco Fair in 1940 showed the percentage of correct responses on general health information was approximately 75 per cent and on superstitions and fallacies about 70 per cent.² It must be remembered that visitors at these fairs represented a higher than average income level. It may be assumed because of their income that most of them had had a fairly good education. Furthermore, those who answered the questionnaire doubtless were those especially interested in health

¹Borgman, Elizabeth, State Home Management Supervisor, Farm Security Administration, Des Moines, Iowa. Private communication. 1945.

²Derryberry, Mayhew, Weisman, Arthur and Caswell, George. What the public knows about health. New York, American Museum of Health, Inc. Mimeog. 1942. p. 67. The study was financed in part by the Carnegie Foundation and the U.S. Public Health Service.

matters. A cross section of the population might not have answered so large a proportion of questions correctly.

In a study of family health practices in Dallas County, Missouri during 1941, Meier and Lively found that the line separating home remedies with scientific basis from those based on superstition was not always distinct.¹ For example, some families believed that drinking milk in which shot had been boiled would cure boils. Again, to avoid taking smallpox they should "chew asafetida and drink whiskey", and that "to remove a lump from the breast one should drink clover blossom tea". Among various home remedies were offered 13 for colds, 48 for burns, 45 for boils, 35 for coughs, 22 for influenza, 15 for cuts, and 11 for sore throat. For 18 different kinds of illness, among them the ailments of pregnancy, influenza, boils and constipation, were recommended 26 different kinds of tea.

Although the average number of home remedies per family was found to be greatest for families in the most isolated part of the county, there was no clear relationship between the number of home remedies used per family and the distance to the nearest physician.

Of course not all home remedies are undesirable. It is likely that many of them, however, are attributable to superstition and tradition. In many cases the remedies are ineffective if not harmful.

¹Meier, Iola and Lively, C.E. Family health practices in Dallas County, Missouri. Mo. Agr. Exp. Sta. Bul. 369. 1943. p. 16, 17.

Goulding of Iowa State College in a study of 727 freshmen college women, found a widespread prevalence of health fallacies among college women. She reported a difference of two per cent in favor of rural women.¹

In 1932 Rhoton found many health misconceptions among prospective teachers at Pennsylvania State College. Old fashioned remedies for the treatment of disease or injury which have little or no scientific basis were believed in by a surprisingly large percentage of the group studied. There was no statistically significant difference reported between beliefs of students from rural districts and those of students from urban areas.²

Education

Some of the fallacies concerning health and concerning services to improve health came from faulty education. There are pseudo-scientific applications of newer health principles, e.g., the present fad for use of vitamin preparations. The preparations too often are relied upon to give greater health protection than they can or to cure conditions for which they are not helpful. In some cases this misuse of good products is due to incomplete education. People read of a new development or hear a lecture on it and promptly proceed to ascribe to it more than it can do. In other cases the cause is advertising. It is likely that advertising by radio has increased greatly the importance of such mis-application of products which if properly used are healthful. It is likely also that such

¹Goulding, Fern A. Health fallacies of freshman college women. Unpublished M.S. Thesis. Ames, Iowa, Iowa State College. 1943. p. 53, 54.

²Rhoton, Paul. Health misconceptions of prospective teachers. State College, Pa. The Pennsylvania State College, School of Educ. p. 57. 1932.

advertising in many cases causes consumers to rely upon valueless proprietary remedies instead of seeing a physician, when the services of the latter are needed.

Health education through the schools, although potentially valuable, is not always as significant as commonly thought. The effectiveness of such education in the short run may be less than anticipated. Even experience in preventive measures such as immunization together with education through the schools is not always effective. For example, a study of 3,684 school children in St. Paul during 1939-1943 indicated that health education in high school had no significant effect in shaping the child's subsequent attitude in his parental responsibility for diphtheria or smallpox immunization.¹

Use of Available Medical and Allied Health Services

Various questions are important in a consideration of use of facilities for medical and allied health services. Among those important with reference to the use of the services of physicians are the following: How many visits per year to various types of physicians do families and individuals make? What proportion of services are obtained in the home and in the physician's office? What type of services are obtained? What home remedies are used? How frequently? What use is made of patent medicines? How much deliberate postponement of the use of services is there? Why?

¹Breslau, Lester, Shalit, Pearl R., and Anderson, Gaylord. Parental and familial factors in the acceptance of diphtheria and smallpox immunization. U.S. Public Health Reports 58:391. 1943.

These questions arise concerning the use of hospitals: How many visits to a hospital does an individual have per year? A family? How long is each period of hospitalization on the average? What specific types of services are obtained?

As to the use of public health facilities there are questions such as these: How many rural families have the home water supply tested for safety? How many visit or are visited by the public health nurse and how frequently? What proportion of the rural population attend classes or other meetings sponsored by a public health unit? What use is made of bulletins published by the public health service? What is the attendance at clinics held by public health units? What proportion of the population does this represent? What follow-up service is obtained after attendance at such clinics?

These are types of questions which need to be considered. They are not of course all inclusive. Further, they cannot be answered in full. Only scattered information on some of them is available at present. Further research is needed in this area.

Main sources of information concerning use of medical and allied services

Some picture of the mass use of medical and allied health services is available. It is, however, inadequate. Little information is available concerning variation in use of these services within the population.

Sources of general information concerning use of facilities. Sources of information concerning the mass use of medical and allied health services in the United States are for the most part governmental. Some have been financed by philanthropy. The most important studies are the survey by the

Committee on the Costs of Medical Care (1928-1931), the National Health Survey (1936) and the Consumers' Purchases Study (1935-1936). The Committee on the Cost of Medical Care, which was non-governmental,¹ included in its survey some data on the use of services of physicians and hospitals reported by families in 1928-1931. The National Health Survey included use of facilities as well as incidence of morbidity, as reported by families in 1935-1936. This survey was under the jurisdiction of the United States Public Health Service.

The most comprehensive data at present are in reports of the Consumers' Purchases Study of 1935-1936 and the later study by the Bureau of Human Nutrition and Home Economics in 1941. These include expenditures for various types of medical and allied services, the percentage of families having such expenditures, and the number of visits to physicians' offices. The United States Bureau of the Census includes in its annual report on Vital Statistics the number and percentage of births attended by physicians and births in hospitals. In addition, its special study concerning hospitals and other institutional facilities and services in 1939 included some data on the use of hospital facilities. There are also annual reports of the American Medical Association on occupancy of hospitals. The surveys of hospitals now being conducted in several states, sponsored by the Commission on Hospital Care of the American Hospital Association, will provide further data on use of hospitals. One such survey is under way in Iowa. These

¹The work of the committee was financed by the Carnegie Foundation, the Milbank Memorial Fund, The Russell Sage Foundation, and the Twentieth Century Fund. The personnel of the committee included representatives of professional, lay, and governmental groups. Committee on the Costs of Medical Care. The Five-year Program of the Committee on the Cost of Medical Care. (Publication of The Committee on Costs of Medical Care: no. 1.) Chicago, The Univ. of Chicago Press. 1928. p. 6, 7.

state surveys are described on page 264 of this thesis.

Sources of information concerning use of facilities by farm families.

Not all of the sources of information listed above include separation of data on use of medical and allied services by rural and urban families. The best data on the mass use of facilities by rural families are in the Consumers' Purchases Study and the Census data.

Some indications of variation in the use of medical and allied services for smaller areas are found in farm family expenditure studies by various experiment stations in land grant colleges. The Iowa Agricultural Experiment Station's annual analyses of farm family home accounts include some data on expenditures for health services. The most complete studies of the use of health facilities groups within the population are the recent studies in Lewis and Dallas counties in Missouri, the former on rural health facilities in Lewis County and the latter on family health practices in Dallas County. No similar study has been made in Iowa. Such a study of selected counties would be of value.

Some additional information concerning use of medical and allied services in Iowa is available from the Farm Security Administration. An analysis was made of the expenditures for health services by FSA borrower families in Iowa in 1944.

These two sources together with some data obtained by the Iowa State Department of Health provide the major indications of use of health facilities in Iowa. The study by the recently appointed State Hospital Survey Committee will in the future doubtless provide valuable information on the use of facilities in Iowa. More research could well be done in this area.

It must be remembered that any expenditure study misses the free services which are available in greater volume to urban than to rural families. Furthermore, expenditures by patients in low cost clinics may give some indication of the use of facilities but they do not indicate the total cost of the services. Data are not available on the use made of various specialists. Most of the data do not include incidence of illness so that a comparison between need for services and use of services can be made.

Use of physicians' services in Iowa and the United States

It is obvious that not all people in the United States who need the services of physicians receive them. The question is the extent to which this is true. Fragmentary evidence is presented in this section.

Illnesses attended by physicians. Concerning this general picture of use of services of physicians, the Committee on the Cost of Medical Care found that 79 per cent of the cases of illness in the families it surveyed between 1928 and 1931 were attended by physicians.¹ In Lewis County, Missouri, Almaack found that in 1939 only a third as many office calls to physicians were reported as there were a number of persons reported ill at some time during the year and that approximately one-fourth of the persons ill received at least one home call from a practitioner.²

¹Collins, Selwyn D. The incidence and causes of illness at specific ages. Milbank Memorial Fund Quar. 13:325. 1935.

²Almaack, Ronald B. The rural health facilities of Lewis County, Missouri. Mo. Agr. Exp. Sta. Res. Bul. 365. 1943. p. 21, 24.

That rural families receive proportionately fewer calls from physicians than do urban families is indicated by reports of the United States Public Health Service. For 1,000 persons living in rural areas and towns under 5,000 in population, 1,750 calls by physicians per year, were reported in 1935-36, whereas 2,233 calls per 1,000 persons in places from 5,000 to 100,000 population and 2,420 for larger cities were reported (See Table 21). The data were not compared with reported need for health services on the part of farm families.

Home and office calls of physicians. In the Consumers' Purchases Study it was found that 63.8 per cent of the farm families surveyed in Pennsylvania and Ohio and 55.5 per cent of the farm families in Illinois and Iowa had office calls to physicians. Of the village families surveyed in the Middle Atlantic and North Central States 59.6 per cent had office calls. Although proportionately more farm families had office calls than did village families, the former had slightly fewer home calls, 43.3 per cent of the Pennsylvania-Ohio farm families and 26.3 per cent of the Illinois-Iowa farm families having home calls, whereas 45.9 per cent of the village families received home calls from physicians. About the same proportion of farm and village families reported the services of special practitioners, 7.9 per cent of the farm families in Pennsylvania and Ohio, and 7.3 per cent of the village families (See Table 20).

Among the families having expenditures for physicians, as reported in the Consumers' Purchases Study, the average number of office calls per year was approximately 11. For Iowa and Illinois farm families 10.8 office calls were reported. There were about seven home calls per family, 8.22 for

Table 20. Percentage of families having certain health expenditures and average number of certain services per family having expenditures, as shown by Consumers Purchases Study

Type of service	Percentage of families having expenditures			Per family having expenditure		
	Farm			Farm		
	Penn.-Ohio	Ill.-Iowa	Village ^a	Penn.-Ohio	Ill.-Iowa	Village
Any medical service						
Physicians		69.2 ¹⁶		Average number of calls		
Office calls	63.8 ⁷	55.5 ¹⁷	59.6 ¹	11.29 ⁷	10.80 ¹⁴	11.05 ¹
Home calls	43.3 ⁷	26.3 ¹⁷	45.9 ¹	8.22 ⁷	5.05 ¹⁴	7.60 ¹
Clinics	0.5 ⁸	0.4 ¹⁷	1.0 ²			
Special practitioners	7.9 ⁹	-	7.3 ²			
Surgeons	2.8 ⁹	-	2.2 ²			
Obstetricians	1.7 ⁹	-	1.2 ²			
Other medical specialists	2.0 ⁹	-	1.8 ²			
Chiropractors	0.5 ⁹	-	0.5 ²			
Osteopaths	0.3 ⁹	-	0.4 ²			
Other non-medical & unknown	0.6	-	1.2 ²			
Hospitalization	7.5 ¹⁰	11.4 ¹⁴	9.9 ³	Average number of days		
Dentist	51.5 ¹¹	48.4 ¹⁶	50.5 ⁴	11.23 ¹⁰	15.18 ¹⁴	12.58 ³
Eye glasses	20.9 ¹²	-	18.7 ⁵			
Oculist's services	5.4 ¹²	-	6.2 ⁵			
Medicines, drugs, appliances, and supplies	73.1 ¹³	78.9 ¹⁶	70.1 ⁶			
Private nursing care	11.0 ¹⁵					
At home		0.06 ¹⁴				
At hospital		1.9 ¹⁴				
Health and accidents service		7.8 ¹⁶				

¹Hollingsworth, Helen, et al. Family expenditures for medical care: five regions. U.S. Dept. of Agr.

Misc. Pub. 402. 1941. p. 13.

²Ibid., p. 16.

⁶Ibid., p. 23.

¹⁰Ibid., p. 44.

¹⁴Ibid., p. 145.

³Ibid., p. 17.

⁷Ibid., p. 40.

¹¹Ibid., p. 46.

¹⁵Ibid., p. 44-45.

⁴Ibid., p. 20.

⁸Ibid., p. 43.

¹²Ibid., p. 46.

¹⁶Calculated from Ibid., p. 204.

⁵Ibid., p. 21.

⁹Ibid., p. 42.

¹³Ibid., p. 49.

¹⁷Calculated from Ibid., p. 145.

Table 21. Certain medical care received by rural and urban residents, United States¹

Type of medical care	Sources			
	Rural	under 5,000	5,000-100,000	100,000 and over
Operations per 1,000 persons per year ¹	47.7	60.4	69.0	72.8
Hospital cases per 1,000 persons per year	42.5	51.4	67.1	71.1
Percentage of persons with smallpox immunisation	34.2	45.0	50.5	71.5
Diphtheria immunisation per 1,000 persons per year	18.9	19.8	16.1	12.1
Eye refractions per 1,000 persons per year	25.9	36.0	44.2	44.9
Dental cases per 1,000 persons per year (adjusted rates)	159.0	230.0	316.0	313.0
Fillings	249.4	358.6	512.9	544.3
Extractions	275.3	242.7	241.0	349.2
All prophylaxis	31.8	73.6	137.4	137.4

¹Source: Yaukey, Jesse B. Variation in amount of different kinds of medical care received by residents in rural and urban communities. Washington, D.C., Farm Security Administration, U.S. Dept. of Agr. 1944. p. 4-14. (Based on survey by Committee on Costs of Medical Care, 1928-31).

Also in Collins, Selwyn D. Frequency of eye refractions in 9,000 families in nation-wide periodic canvasses, 1928-1931. U.S. Public Health Reports 49:359, Table 5, 1934. (Similar data cited in Lorn, Harold F. Rural Sociol. 7:29. 1942.)

the Pennsylvania-Ohio farm families, 5.05 for the Illinois-Iowa farm families and 7.60 for the village families of the Middle Atlantic and North Central area. Iowa and Illinois families reported slightly fewer calls in both cases. The median number of home calls in Lewis County, Missouri, was reported, however, as only 1.6.¹

It would be helpful to have information concerning the relative importance of home and office calls in rural and urban communities in Iowa. It would also be helpful to have more data on the incidence of use made of various specialists.

Specific services received. The Committee on Costs of Medical Care found that among the persons surveyed there were 438 services such as vaccinations, immunizations, eye refractions, physical examinations and dental services.² There is some variation in number of immunizations among people in places of different size, according to the United States Public Health Service, as shown in Table 21. That survey indicated, for example, that 73 per cent of the persons in places over 100,000 in population canvassed had a history of smallpox vaccination; 54 per cent of those in places from 5,000 to 10,000; 49 per cent of those living in open country. Refractions were least frequent in rural areas for every age group.³ Frequency of eye refraction in small cities came next.

¹ Ibid., p. 24.

² Collins, Selwyn D. Incidence and causes of illness, p. 325.

³ Collins, Selwyn D. Frequency of eye refraction in 9,000 families in nation-wide periodic canvasses, 1928-31. U.S. Public Health Reports 49:658. 1934.

Refractions were most frequent in places over 5,000 in population. The frequencies per 1,000 population were: 29 in open country, 42 in towns less than 5,000; 52 in places 5,000 to 100,000; and 51 in places over 100,000 in population. About the same pattern was shown in dental services, of which there were 155 services per 1,000 persons living in open country; 221 per 1,000 for those in towns less than 5,000 in population; 304 for those in places 5,000 to 100,000 in population; and 308 for larger cities (See Table 21). In Lewis County, Missouri, approximately one-fifth of the persons surveyed had some form of dental service during the year.¹

There are also some indications that farm families and those in small towns receive fewer surgical services than do families in larger population centers. The United States Public Health Service reports 49 surgical operations per year per 1,000 population in 1928-1931, for families living in open country and 64 per 1,000 population for those in towns less than 5,000 in population. On the other hand, there were 73 surgical operations per 1,000 population in places from 5,000 to 100,000 in population and 76 per 1,000 persons in larger cities (See Table 21).

Medical attendance at births. The proportion of births attended by physicians varies widely among the states. Iowa is one of the states in which the percentage of reported births attended by physicians is nearly 100 per cent. Other states in this group include Kansas, Nebraska, New Hampshire, Ohio, Pennsylvania, Vermont and the District of Columbia.

¹ Almack, op. cit., p. 28.

Mississippi had the lowest percentage of births attended by physicians in 1942, with 53.8 per cent.¹ In the United States as a whole 92.6 per cent of all births recorded were attended by a physician. In Iowa in 1942, 99.9 per cent of the reported births were attended by physicians, and only 0.1 per cent by midwives and other and non-specified attendants. Of Iowa births, only 10 were attended by midwives and 26 or 0.1 per cent by other and non-specified attendants (See Table 22).

In Iowa in 1942 there were 22.8 per cent more births to rural residents than to urban.² There was scarcely any difference in the proportion of births attended by physicians in rural and urban areas. Almost all of the reported births were attended by physicians. Less than 0.1 per cent³ of the reported births to rural residents were not attended by physicians (seven by midwives; 22 other and unspecified attendants). Only 10 of the 21,740 reported births to urban residents were not medically attended. For the United States as a whole 88.9 per cent of the reported births to rural residents were attended by physicians and 97.5 per cent of those to urban residents.

Data published by the Iowa State Department of Health indicate an increase during the decade 1932-1941 in the percentage of mothers in the state who first visited their physicians before the end of the third month

¹U.S. Bur. of Census. Vital Statistics-Special Reports. 1942.Vol. 19. no. 8:96. 1944.

²26,714 rural compared to 21,740 urban.

³29 of the 26,714 reported births.

Table 22. Percentage of live births by person in attendance, Iowa and United States, 1935 to 1942

Place and year	Total	Percentage of live births attended by:				
		Physician		Midwife	Other and not specified	
		In hospital	Not in hospital			
Iowa	1942 ²	100.0	72.0	27.9	0.0	0.1
	1941 ³	100.0	63.9	35.99	0.02	0.04
	1940 ⁴	100.0	58.4	41.53	0.03	0.02
	1939 ⁵	100.0	52.3	47.6	.01	.05
	1938 ⁶	100.0	47.9	52.01	0.03	0.06
	1937 ⁷	100.0	43.9	56.05	0.05	.05
United States	1942	100.0	67.9	24.7	7.0	0.4
	1941	100.0	61.2	30.2	8.1	0.5
	1940	100.0	55.8	35.0	8.7	0.5
	1939	100.0	51.1	39.1	9.2	0.5
	1938	100.0	48.0	41.8	9.5	0.6
	1937	100.0	44.8	44.6	10.0	0.6
	1936	100.0	40.8	47.3	10.4	1.3
	1935	100.0	36.9	50.8	10.7	1.8

¹Source: U.S. Bur. of Census. Vital Statistics-Special Reports, 1942. Vol. 19, no. 8. 1944. p. 95.

²Ibid., p. 98.

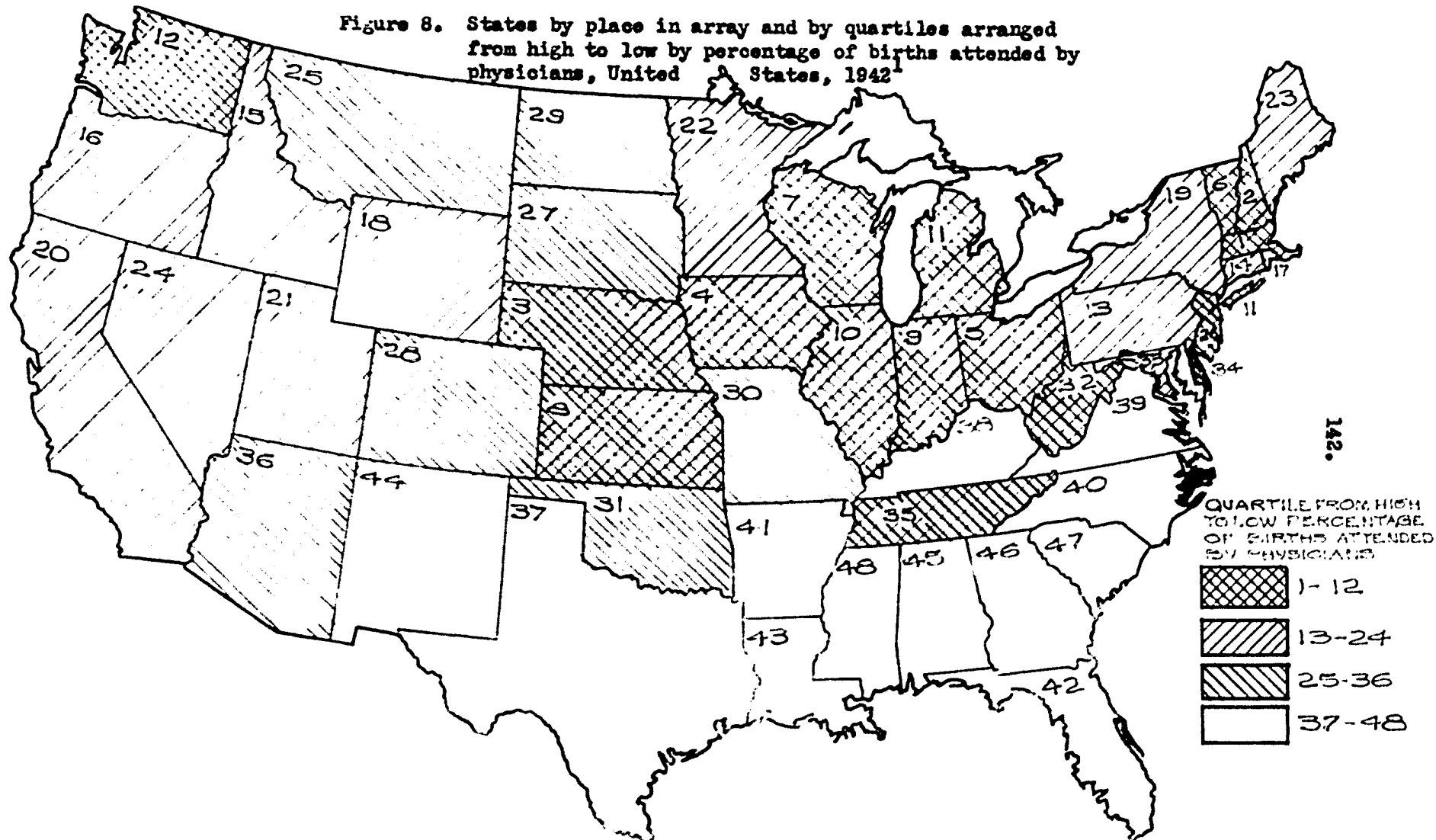
³Computed from Ibid., 1941. Part 1. p. 85.

⁴Computed from Ibid., 1940. Part 2. p. 132.

⁵Computed from Ibid., 1939. Part 2. p. 97.

⁶Computed from Ibid., 1938. Part 2. p. 95.

⁷Computed from Ibid., 1937. Part 2. p. 94.



¹Source: U.S. Bur. of Census. Vital Statistics-Special Reports, 1942. Vol. 19, no. 8:96. 1944.

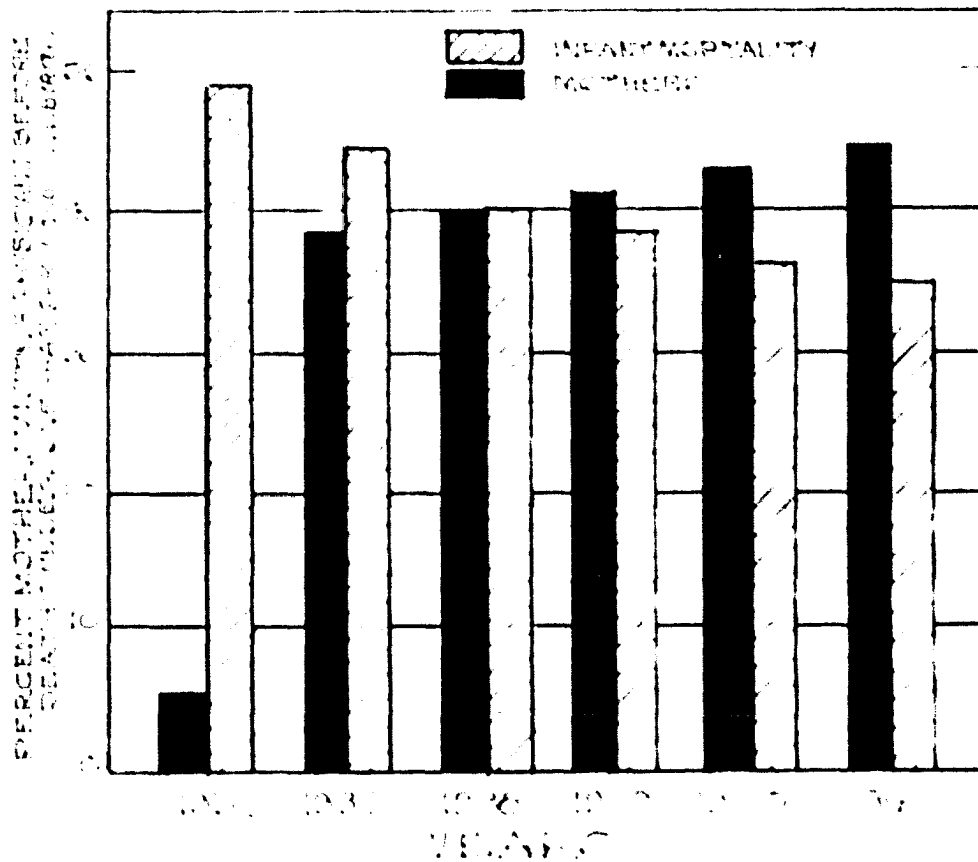
Table 23. Percentage of live births by person in attendance and by type of locality, Iowa and United States, 1942¹

Type of locality	Percentage of live births					
	Person in attendance					
	Total	Physician				
	live births	In hospital	Not in hospital	Midwife	Others and unspecified	
Iowa						
Rural	100.0	60.50	39.39	0.03	0.08	
Urban	100.0	86.19	13.78	0.01	0.02	
Places 1,000-10,000	100.0	76.03	23.93	0.04	0.	
Places 10,000-100,000	100.0	89.66	10.31	0.01	0.2	
Places under 10,000	100.0	63.16	36.74	0.03	0.07	
Places 10,000 & over	100.0	89.66	10.31	0.01	0.02	
Total	100.0	72.0	27.9	0.0	0.1	
United States						
Rural	100.0	44.84	55.2	13.39	0.82	
Urban	100.0	84.35	15.6	2.40	0.16	
Places 2,500-10,000	100.0	69.50	26.31	4.86	0.33	
Places 10,000-25,000	100.0	80.26	15.86	3.74	0.13	
Places 25,000-100,000	100.0	85.67	11.35	2.80	0.13	
Places 100,000 & over	100.0	90.25	8.69	0.97	0.09	
Places under 10,000	100.0	49.63	37.91	11.73	0.73	
Places 10,000 and over	100.0	87.44	10.55	1.99	0.12	
Total ²	100.0	67.88	24.71	6.98	0.43	

¹Source: Computed from U.S. Bur. of Census. Vital Statistics for the United States, 1942. Part 2. p. 142, 143. 1944.

²Source: U.S. Bur. of Census. Live births by person in attendance 1942. Vital Statistics-Special Reports 1942. Vol. 19, no. 8. 1944. p. 95. 1945.

Figure 9. Percentage of mothers visiting physicians before end of third month of pregnancy, compared with infant mortality rates, Iowa, 1932-1941¹



¹ Iowa State Dept. of Health. Biennial Report, 1941/42:55,56. 1942.

of pregnancy. The data were obtained from birth certificates. Figure 9 indicates a possible correlation between early care in pregnancy and a decreasing birth rate in Iowa.

The fact that Iowa is among the few states in which nearly all reported births are attended by physicians does not signify that there is no need for more medical care for childbirth. It does not indicate the extent of prenatal and postnatal care involved. It may be, too, that in some cases the physician signed the birth certificate but was not actually in attendance. There are no data casting light on number of births which are not reported.

Use of general hospitals in the United States and Iowa

Three approaches to the question of use of hospitals are used in this section: (1) reference to surveys in which samples of the population were canvassed; (2) occupancy rate of hospitals as reported by the American Medical Association; and (3) relative number of births occurring in hospitals as reported by Bureau of the Census.

Proportion of population hospitalized and average length of period of hospitalization. In the United States approximately ten per cent of the population is hospitalized annually. Data from various sources fluctuate around this point. For example, during 1942, according to the American Medical Association, 9.5 per cent of population was hospitalized.¹ The percentage of Iowa population hospitalized during the same year was 7.8.

¹American Medical Association. Council on Medical Education and Hospital Association. Hospital Service in the United States. Amer. Med'l Assoc. 121:1018. 1943.

Only six states had a lower percentage of the population hospitalized during the year.

Of farm families surveyed in the Consumer Purchases Study, 7.5 per cent were hospitalized during a year. Of village families 9.9 per cent were hospitalized. In Lewis County, Missouri, 11.6 per cent of the families were reported by Almack as having had one or more members hospitalized during the year of the study.¹ No data are available as to the hospitalization of Iowa farm families as a whole.

Among 276 Iowa farm families aided by the Farm Security Administration, 26 per cent used hospital services during 1944.² This is not of course a representative sample of Iowa farm families as a whole or even of Iowa farm families of this income group. The average number of days of hospitalization per family reporting expenditures for this purpose in the Consumers Purchase Study was 11.23 for all farm families and 12.53 for village families. Iowa and Illinois farm families included in the survey reported somewhat more days of hospitalization than either of these. They had an average of 15.18 days in the hospital. This figure doubtless reflects greater ability to pay for service rather than greater need for service.

Occupancy rates of general hospitals. The occupancy rate of hospitals is, of course, a direct index of the utilization of hospital facilities. This rate is defined as the ratio of the actual number of days of hospital care given to the maximum number of patient days possible in relation to the bed capacity.³

¹Computed from Almack, op. cit. p. 29.

²Borgman, Elizabeth, op. cit.

³U.S. Bur. of Census. Hospital and other institutional facilities and services, 1939. Part III. Use of Hospital Facilities. Vital Statistics-Special Reports. Vol. 13., no. 54. 1942. p. 607.

Such an index is of value in determining the adequacy of existing bed facilities. It does not, however, indicate the adequacy of the types of service beyond bed service. Then, too, although the occupancy rate is generally accepted as a measure of adequacy of existing bed facilities and may be so as far as effective demand is concerned, the occupancy rate of hospitals will not reflect adequacy in relation to actual need. Many families are unable because of income to use available facilities. The index can be used only as a very general guide to test adequacy of the number of hospital beds.

According to Lee and Jones, an occupancy of 80 per cent in general and allied hospitals reflects the most effective hospital operation¹ actually possible. For special hospitals, e.g., mental and nervous hospitals, the optimum occupancy suggested is 90 per cent.² The Bureau of the Census states that a reserve of 15 to 20 per cent of the beds in general hospitals and of five to 10 per cent in special hospitals is generally accepted as a measure of the most effective use of bed facilities.³

Data on occupancy of registered general hospitals among the states as published by the American Medical Association indicate that occupancy rates are less than the suggested optimum. In 1940, for example, occupancy

¹Lee and Jones, op. cit., p. 119.

²Ibid., p. 119.

³U.S. Bur. of Census, Hospital and other institutional facilities and services, 1939, Part III. p. 607.

rates among the states ranged from 78.3 per cent in New York to 56.0 per cent in New Mexico.¹ The average for the United States was 70.3 per cent. For Iowa the rate was 65.0 per cent.

The survey of hospital facilities in 1939 made by the Bureau of the Census, which included non-registered as well as registered hospitals, indicated lower occupancy rates for both the United States as a whole and for Iowa than was reported by the American Medical Association. For the United States the Bureau reported a 66.3 per cent occupancy rate in 1939 whereas the Association reported 69.2. For Iowa the former reported a rate of 60.2 per cent and the latter 64.1 per cent.

In general, occupancy rates have not changed according to any regular pattern since 1930. For the United States as a whole they have fluctuated from 62.2 to 70.3 per cent. In Iowa the rates have ranged from 59.5 to 72.1 per cent.²

Data indicate that in general less use is made of existing hospital facilities in the regions in which they are relatively scanty than in regions in which they are relatively abundant. The American Medical Association found, for example, that the states having from one to two general hospital beds per 1,000 population in 1940 had an average bed occupancy rate of 62.4 per cent; those from two to three beds, 66.1 per cent; those from three to four beds, 70.6 per cent; over six beds, 67.6 per cent (See Table 24).

¹American Medical Association. Council on Medical Education and Hospital Service. Hospital service in the United States. J. Amer. Med'l Assoc. 116:1059. 1941.

²Ibid., p. 1057.

Table 24. Occupancy rate in general hospitals in state groups according to beds per 1,000 population. United States, 1940¹

Number of states	Beds per 1,000 population	Average per cent of occupancy
3	1 to 1.9	62.4
11 ²	2 to 2.9	66.1
16	3 to 3.9	70.6
12	4 to 4.9	73.8
6	5 to 5.9	70.0
1	6 and over	67.6
<u>48³</u>		<u>70.3³</u>

¹Source: American Medical Association. Hospital service in the United States. J. Amer. Med'l. Assoc. 116:1057. 1941.

²Includes Iowa.

The question of why occupancy rates in general hospitals are less than optimum while at the same time needs for hospitalization are met inadequately must still be answered. Very likely it is largely an income factor. As indicated earlier, prejudice and ignorance also are important factors.

Another area for study is the occupancy of hospitals under various types of control, government, non-profit, and proprietary.

¹Births in hospitals. As indicated in Table 25 the proportion of births occurring in hospitals has been increasing during the past few years.

¹Data concerning births according to attendance by physicians and occurrence in hospitals have been available since 1935 in the Vital Statistics reports of the Bureau of the Census. Data for rural areas and urban areas, according to census definition, i.e., rural defined as places under 2,500 in population, have been published since 1940, although only numbers and not rates were given in 1940 and 1941. Rates were published in 1942 for the first time.

In 1942, 72.0 per cent of Iowa births took place in hospitals, as contrasted to 43.9 per cent in 1937. This represents an increase of 60.4 per cent in the proportion of births occurring in hospitals. For the United States as a whole the percentages were lower than for Iowa, although the proportion of increase was very much the same. The percentage of births in hospitals jumped from 44.8 in 1937 to 67.9 in 1942, an increase of 59.0 per cent.

This increase in the proportion of births occurring in hospitals has taken place in all types of communities. In places under 10,000 in population in Iowa the percentage of hospital births has increased from 32.8 in 1937 to 60.5 in 1942; in the United States, from 24.9 to 49.6. During the same period, in places of 10,000 or over in Iowa, the percentage of births occurring in hospitals increased from 70.6 to 86.2 and in the United States from 71.3 to 87.2. Data on births to rural residents in contrast to urban were not published before 1940.

The relative proportion of births to rural residents occurring in hospitals in Iowa is much greater than that for the United States as a whole. In Iowa in 1942 60.5 per cent of the births to rural residents occurred in hospitals, whereas for the United States 44.3 per cent occurred in hospitals (See Table 25). As to births to urban residents, approximately the same picture is reflected in Iowa and for the United States in general. Of births to urban residents in Iowa 86.2 per cent occurred in hospitals; for the United States 84.4 per cent. There was considerable variation among the states in the relative proportion of births to rural and urban residents occurring in hospitals in 1942. The highest proportion of births to rural residents occurring in hospitals appeared in the state of Washington,

Table 25. Percentage of births occurring in hospitals to residents of places under 10,000 and places over 10,000, Iowa and United States, 1937-1942¹

Year	Total		Places under 10,000		Places 10,000 & over	
	In hospitals	Not in hospitals	In hospitals	Not in hospitals	In hospitals	Not in hospitals
Iowa						
1942 ²	72.0	28.0	60.5 ²	39.5 ²	36.2	13.8
1941 ³	63.9	36.1	54.4	45.8	35.2	14.8
1940 ⁴	53.4	41.6	48.6	51.4	31.2	18.8
1939 ⁵	52.3	47.7	41.3	58.7	28.3	21.7
1938 ⁶	47.9	52.1	36.8	63.2	24.1	25.9
1937 ⁷	43.9	56.1	32.8	67.2	20.6	29.4
United States						
1942 ²	67.9	32.1	49.6	50.4	37.4	12.6
1941 ³	61.2	38.8	42.3	57.7	34.0	16.0
1940 ⁴	55.8	44.2	36.5	63.5	30.5	19.5
1939 ⁵	51.1	48.9	31.5 ⁸	68.5 ⁸	27.6 ⁹	22.4 ⁸
1938 ⁶	49.0 ⁷	52.0 ⁷	23.4 ⁸	71.6 ⁸	24.3 ⁹	25.7 ⁸
1937 ⁸	44.8	55.2	24.9	75.1	21.3	22.7

¹ Separate rates for rural area defined as places under 2,500 were not published by the Bureau of the Census before 1942. Numbers of births for rural areas were published, however, in 1940 and 1941.

² Computed from U.S. Bur. of Census. Vital statistics for the United States, 1942. Part II. p. 142, 143. 1944.

³ Ibid., 1941. p. 14.

⁴ Ibid., 1940. p. 14.

⁵ Ibid., 1939. p. 15.

⁶ Ibid., 1938. p. 15.

⁷ Ibid., 1937. p. 14.

⁸ Ibid., 1938. p. 14.

⁹ Ibid., 1938. p. 15.

in which 90.3 per cent of the births to rural residents and 97.5 per cent of the births to urban residents occurred in hospitals. On the other hand, in Kentucky only 10.2 per cent of the births among rural residents as contrasted with 62.6 per cent of the births among urban residents were in hospitals.¹

Consumer Income as a Factor Affecting Demand
for Medical and Allied Health Services

It is likely that both need for medical and allied health services and effective demand for them, insofar as they are purchased by families receiving them rather than made available through public health agencies or through philanthropy or relief, depend in large part upon family income. In this section the relation between family income and demand for health services is examined as reflected by: (1) need for health services, (2) percentage of families purchasing health services, (3) number of services demanded by families, (4) types of medical and allied health services demanded, and (5) average expenditures for these services and the percentage these represent of total family income and total expenditures for family living. Differences between types of communities are included in each part. Differences between regions of the nation are omitted in the present discussion.

¹U.S. Bur. of Census. Vital Statistics-Special Reports, 1942. Vol. 19, no. 8. p. 102-106. 1944.

Relation between family income and need for medical and allied services

Several studies have shown that frequency and severity of illness are highest among people living at low income levels. The National Health Survey, for example, indicated that illnesses keeping individuals from their usual activities for a week or longer during a 12 months period occurred at a rate 17 per cent higher among non-relief families receiving less than \$1,000 a year than among those receiving at least \$3,000 a year.¹ The average duration of disability per case was 67 days a year for the non-relief families in the low income group, decreasing to 44 days in the high income group.² Most of the difference was in duration of chronic illnesses; there was little difference shown in duration of acute illnesses.

That need for medical services varies inversely with family income also has been indicated by the California Medical Economics Survey in 1934, which showed that 21.9 per cent of the families with incomes under \$500 reported need for medical treatment, whereas 12.4 per cent of those with incomes from \$1200 to \$1499 and 8.8 per cent of those with incomes from \$5,000 to \$9,000 reported such need. On the average, 13.8 per cent of the families canvassed reported need for medical services. However, 14.3 per cent of families with incomes under \$3,000 reported such needs in contrast to 9.8 per cent of those with incomes of \$3,000 or over.³ Similar proportions

¹U.S. Public Health Service. Illness and medical care in relation to economic status. National Health Survey. Preliminary reports. Sickness and Medical Care Series. Bul. 2. Washington, 1938. Revised 1939. p. 2.

²Ibid., p. 4.

³Dodd, Paul A. and Penrose, E.F. Economic aspects of medical services with special reference to conditions in California. Washington, Graphic Arts Press, 1939. p. 75. The California Medical-Economic Survey was

of families among these income groups reported need for dental service.¹

It may be that some ailments are more closely correlated with family income than others. In the California Medical Economic Survey it was found that the following ailments were more common among the lower income families: general diseases of the digestive system; diseases of the tonsils, adenoids, and pharynx; eye conditions; tuberculosis; non-venereal diseases of the genito-urinary systems; and diseases of the circulatory system exclusive of the heart. Among those showing little correlation with family income were general diseases of the nervous system, accidental injuries, and respiratory diseases not including tuberculosis.² Data were not separated as to needs of farm and non-farm families as related to income. Persons living in places under 5,000, however, reported greater need for medical and dental service in each income group.³

It must be remembered, of course, that needs for medical service are not always recognized by the layman and that the above data offer but crude

(Footnote continued)

conducted from 1934 to 1938. The schedule method was used in obtaining data from families and from medical physicians, osteopathic physicians, dentists, hospitals, and public health agencies. Over 30,000 schedules were returned. The survey was financed by the California State Emergency Relief Administration, The California Medical Association, the State Osteopathic Association, and The State Dental Association of California, (Ibid., p. 1-12).

¹ Ibid., p. 78. 13.6 per cent of families with incomes under \$500 reported need for dental service, 9.3 per cent of those with incomes from \$1,200 to \$1,499, and 5 per cent of those with incomes from \$5,000 to \$9,999.

² Ibid., p. 90-91.

³ Ibid., p. 76-79.

measurement of need. It is possible that physical examinations of the people included in the survey would have indicated still greater differences in need, since those in lower income groups who long have suffered privation may have become accustomed to poor health status and may not recognize adverse health conditions as needing treatment.

Data concerning the relation between family income and need for medical and allied services are not available for Iowa families, nor are they available for rural families as separated from urban families in the studies which have been made.

Since the level of living in rural communities of Iowa as analyzed by Hagood¹ is high as compared with other states, the assumption may be made that the need for health services insofar as it is affected by low income is relatively less than in some other states. Adequate data to support this hypothesis are not, however, available.

Percentage of families having expenditures for medical and allied health services as related to family income

Although nearly all families have expenditures for some types of health services there are marked variations in the number having certain services commonly considered essential, e.g., the services of physicians.

¹ Hagood, Margaret J. Rural level of living indexes for countries of the United States, 1940. U.S. Dept. of Agr., Bur. of Agr. Economics. Mimeog. 1943.

Among farm families included in a study by the Bureau of Human Nutrition and Home Economics in 1941 and part of 1942, 81 per cent of those with incomes under \$500 purchased health services; of those with incomes from \$500 to \$1,000, 93 per cent. Among higher income groups, \$3,000 or more, the proportion varied from 95 to 100 per cent. The picture was similar for rural non-farm groups.¹

It was found in the Consumers Purchases Study that among village families in the Middle Atlantic and North Central area the percentage of families having expenditures for medical services rose from 49 per cent of those in the family income class \$250-\$499 to 84 per cent of those receiving \$3,000-\$3,999.² (See Table 30).

Among these families as few as two per cent of the families in the income group \$250-\$499 spent for hospitalization whereas 20 per cent or more of those in income groups above \$2,500 had such expenditures. The percentage of families spending for services of physicians also rose fairly consistently with income, from 49 per cent in the class \$250-\$499 to 84 per cent at the level \$3,000-\$3,999. It must be remembered, of course, that some of the low income families received free services which are not indicated in the data. However, only non-relief families are included in the Consumers Purchases Study data. It also must be remembered that expenditures alone do not indicate quantity, quality, or types of service.

¹U.S. Bur. of Human Nutrition and Home Economics. Rural family spending and saving in wartime. U.S. Dept. of Agr. Misc. Pub. 520.1943. p. 162.

²Hollingsworth, Helen, et al. Family expenditures for medical care: five regions. U.S. Dept. of Agr. Misc. Pub. 402. 1941. p. 11, 12.

Number of services demanded as related to family income

Low income families spend money for fewer services than do families of higher income. Of the above mentioned village families having expenditures for services of physicians, the low income families received both fewer office and fewer home calls than did higher income families. The group of families with an annual income of \$1,000-\$1,249 received an average of 10.25 office calls, whereas the income group from \$2,000-\$2,499 received 13.86 and the group from \$3,000-\$3,999 received 14.42 office calls. The average number of home calls varied similarly: 7.46 for the income group \$1,000-\$1,249, 7.86 for the group \$2,000-\$2,499, and 9.15 for the group \$3,000-\$3,999.¹ Another study, the California Medical Economics Survey, indicated that in the income group receiving less than \$1,000 per year only one in five who needed dental care received it, whereas in the income group from \$2,000 to \$3,000 one in two received it and in the income group over \$10,000 four in five.²

Consumer income and types of medical and allied services demanded

There is some evidence that not only the number of health services but also the types of services demanded vary with income. For example, the Consumer Purchases Study indicated that medicines and drugs constitute a larger portion of the total bill for health services among low income than among high income village families of the Middle Atlantic and North Central

¹ Ibid., p. 13.

² Dodd, op. cit., p. 409.

Region, whereas dentistry and nursing services constitute a larger portion at the upper income levels.¹ Farm families with an annual income from \$500 to \$1,000, for instance, used 38 per cent of their health expenditures for the services of physicians, in contrast to the income group from \$5,000 to \$10,000, which used 26 per cent. Medicines and drugs took 20 per cent of the health expenditures of the low income group and less than eight per cent of those of the high income groups. On the other hand, expenditures for dental services constituted less than 8 per cent of the total for health services in the low income group in contrast to more than 17 per cent in the high income group (See Table 26).

In Lewis County, Missouri, a somewhat similar pattern was found.² Comparable data for Iowa are not available. Here, again, is a field for further investigation.³ Again, in the survey by the Committee on Costs of

¹Hollingsworth, op. cit., p. 11.

²Almack, op. cit., p. 35.

³The home accounts of the families in the Farm Association offer possible source of data. Thus far the expenditures for medical and allied services are listed in too general a form for classification by types of such services to be made accurately. The accounts of the clients of the Farm Security Administration also may provide source of data in the future. The health expenditures of this group have been clearly classified within the total for only one year. In order for such data to be of use for this type of analysis it doubtless will be necessary for the families to have some help from a field worker in method of recording specific items, e.g., recording whether the services of Dr. Jones were for dental services or for Johnny's cold, and whether expenditures for "Mary's operation" included services of physicians or hospital.

Table 26. Medical care: average and percentage expenditures of farm, rural non-farm and urban families at selected income levels, United States, 1928-1936¹

Income level and type of community	: All : medical	: Physician	: Dentist	: Oculist and : other : specialists	: Medicine, : drugs	: Other : medical : services
A. Average expenditures						
\$ 500-\$1,000 ²						
Farm	34	13	3	3	7	8
Rural non-farm	35	13	4	2	6	10
Urban	35	12	4	2	6	11
\$1500-\$2,000 ²						
Farm	69	23	9	7	10	20
Rural non-farm	77	21	10	9	10	28
Urban	77	23	13	6	11	24
\$3000-\$4,000 ²						
Farm	111	33	14	12	11	41
Rural non-farm	146	33	19	18	17	59
Urban	142	57	28	14	18	45
\$5000-\$10,000 ²						
Farm	182	40	24	10	15	63
Rural non-farm	310	64	48	43	31	124
Urban	284	70	64	32	26	92
All income levels ³						
Farm	47	16	6	4	7	14
Rural non-farm	59	16	7	7	7	22
Urban	72	21	12	6	10	23

¹As indicated by Consumer Purchases Study.

²U.S. National Resources Planning Board. Family expenditures in the United States. Washington, U.S. Govt. Print. Office, 1941. p. 12.

³Ibid., p. 70.

⁴Ibid., p. 50.

⁵Ibid., p. 122.

⁶Calculated from above data.

Table 26. (continued)

Income level and type of community	: All : medical : care	: Physician : Dentist : specialists	: Oculist and : other : specialists	: Other : Medicine, : drugs	: medical : services
B. Percentage of income					
\$ 500-\$1,000 ⁴					
Farm	4.5	1.7	0.4	0.4	1.1
Rural non-farm	4.6	1.7	0.5	0.3	1.3
Urban	4.4	1.5	0.5	0.2	1.4
\$1500-\$2,000 ⁴					
Farm	4.0	1.4	0.5	0.4	1.2
Rural non-farm	4.5	1.2	0.6	0.5	1.6
Urban	4.4	1.3	0.9	0.3	1.4
\$3000-\$4,000 ⁴					
Farm	3.3	1.0	0.4	0.4	1.2
Rural non-farm	4.3	1.0	0.6	0.5	1.7
Urban	4.1	1.1	0.8	0.4	1.3
\$5000-\$10,000 ⁴					
Farm	2.3	0.6	0.4	0.1	1.0
Rural non-farm	4.5	0.9	0.7	0.6	1.8
Urban	4.1	1.0	0.9	0.5	1.3
All income levels ⁵					
Farm	3.0	1.4	0.5	0.3	1.1
Rural non-farm	4.2	1.2	0.5	0.5	1.5
Urban	3.9	1.2	0.7	0.3	1.2

Table 26. (concluded)

Income level and type of community	All : medical : care	Physician : Physician :	Dentist : Dentist :	Oculist and other specialists	Medicine, drugs	Other medical services
C. Percentage of total expenditure for medical care ⁶						
\$500-\$1,000						
Farm	100.0	37.7	8.9	8.9	20.0	24.5
Rural non-farm	100.0	36.9	10.9	6.6	17.4	20.3
Urban	100.0	34.1	11.4	4.5	18.2	31.8
\$1,500-\$2,000						
Farm	100.0	35.0	12.5	10.0	12.5	30.0
Rural non-farm	100.0	26.7	13.3	11.1	13.3	35.6
Urban	100.0	29.6	18.2	6.8	13.6	31.9
\$3,000-\$4,000						
Farm	100.0	30.3	12.1	12.1	9.1	36.4
Rural non-farm	100.0	23.3	14.0	11.6	11.6	39.5
Urban	100.0	26.1	19.7	9.9	12.7	31.6
\$5,000-\$10,000						
Farm	100.0	26.1	17.4	4.3	8.7	43.5
Rural non-farm	100.0	20.0	15.6	13.3	11.1	40.0
Urban	100.0	24.4	22.0	12.2	9.8	31.6
All income levels						
Farm	100.0	35.9	12.8	7.7	15.4	28.2
Rural non-farm	100.0	28.6	11.9	11.9	11.9	35.7
Urban	100.0	30.8	17.9	7.7	12.8	30.8

Medical Care it was found that refractions per 1,000 population increased regularly from 22.2 for the income group under \$1,200 per year to 101.5 for the income group with \$5,000 or over per year (See Table 27).

Table 27. Refractions per 1,000 population per year at different income levels¹

Annual family income	Refractions per 1,000 population
Under \$1,200	22.2
\$1,200 but under \$2,000	23.5
\$2,000 but under \$3,000	36.0
\$3,000 but under \$5,000	49.5
\$5,000 and over	101.5

¹Source: Collins, Selwyn P. Frequency of eye refraction in 9,000 families on nation-wide periodic canvasses, 1928-1931. U.S. Public Health Reports 49:656. 1934. (Data from study by Committee on Costs of Medical Care and the United States Public Health Service)

Consumer income and expenditure for medical and allied health services

Per capita expenditures, average expenditures per family and percentage of income which is spent for medical and health services are discussed here. Although expenditures per family as used here do not take into consideration variations in size of family, they are helpful in showing pattern of expenditures for health services.

Expenditures per capita. As might be expected, expenditures per capita for medical and allied health services tend to increase with increase in family income. Among rural families included in the Consumer Purchases Study the per capita expenditure for health services increased from \$5

for families with annual income under \$500 to \$32 for families with income from \$5,000 to \$10,000. For urban families the pattern was similar although the absolute amounts were larger, ranging from \$8 per capita in the low income families to \$69 in the high income families (See Table 27). The percentage of per capita income represented by per capita expenditure for medical and allied health services decreased consistently with rise in income level for rural families, from 4.09 per cent in the income group \$500-\$1,000 to 2.33 per cent for income groups with \$5,000-\$10,000 among farm families and from 5.30 per cent to 1.36 per cent from those income groups among rural non-farm families. Among urban families, however, the percentage remained slightly over four per cent for incomes from \$500 to \$10,000.

Expenditures per family. Absolute expenditures for medical and allied health services increase with rise in income, as indicated by the Consumer Purchase Study in 1935-1936 and by the study of rural wartime expenditures in 1941. As between rural and urban families in the same income group little difference appears in the amount spent for health expenditures until the \$2,000 income level is reached. In income groups higher than \$2,000, farm families spent less for medical and allied health services than did rural non-farm or urban families (See Table 28).

Correspondingly, the percentage of family income spent for health services tends to decrease with increase in family income, but this percentage decrease is not marked. However, the same pattern is not shown in the expenditures in all types of localities. Little difference appears in the percentage of income going for health services in rural non-farm and urban families at various levels between \$500 and \$10,000.

Table 28. Per capita income and per capita expenditures for health by farm, rural non-farm, and urban families by family income levels, United States, 1935-1936.

Income level	Farm			Rural non-farm			Urban		
	Per capita income ¹	Per capita expenditure for medical care ²	Per capita expenditure for medical care ²	Per capita income ¹	Per capita expenditure for medical care ²	Per capita expenditure for medical care ²	Per capita income ¹	Per capita expenditure for medical care ²	Per capita expenditure for medical care ²
	Amount	Per cent	Per cent	Amount	Per cent	Per cent	Amount	Per cent	Per cent
	Amount	Per cent	Per cent	Amount	Per cent	Per cent	Amount	Per cent	Per cent
Under \$500	\$ 85	\$ 5	5.88	\$ 104	\$ 6	5.77	\$ 106	\$ 8	7.55
\$500-\$1000	171	7	4.09	212	10	4.72	225	10	4.44
\$1000-\$1500	274	12	4.58	328	14	4.27	346	15	4.34
\$1500-\$2000	382	15	3.93	442	20	4.52	471	21	4.46
\$2000-\$3000	519	18	3.47	590	25	4.18	635	27	4.25
\$3000-\$4000	737	24	3.26	831	36	4.33	864	35	4.06
\$4000-\$5000	935	22	2.35	1121	40	3.57	1057	44	4.18
\$5000-\$10,000	1372	32	2.33	1720	78	4.53	1686	69	4.09

¹Source: U.S. National Resources Planning Board. Family expenditures in the United States. Washington, U.S. Govt. Print. Off. 1941. p. 13.

²Calculated from above.

The decrease in percentage of income for health is more apparent among farm families, particularly after the \$2,000 income level is reached (See Tables 29 and 30).

On the other hand, the percentage which health expenditures represent of total expenditures does not change much with change in income. It is about 4.5 per cent. The general direction is toward a slight increase with increase in total expenditures. It is to be noted that the proportion of total expenditures going to health services is similar among farm, rural non-farm, and urban families of the same income levels.

Almack reports a similar pattern in his study of the health expenditures of 517 families in Lewis County, Missouri. He found that with the average annual expenditure for medical and health services for all households used as a base the index of expenditure for these services per household increased from 79 for the income group under \$500 to 102 for the group from \$500 to \$999 and 151 for the group with annual income of \$1,000 or over.¹ For the services of practitioners the index increased from 85 in the low income group to 109 in the middle group and 124 in the top. Hospital services increased from an index of 47 to 89 and 255, respectively; dental services from 85 to 134; optical services from 87 to 121. The index of expenditures for drugs decreased from 103 in the low income group to 87 in the middle income group and to 109 in the upper income group.²

It is to be noted in Table 28 that the pattern of expenditures for health in rural non-farm families is similar to that for urban families

¹Almack, op. cit., p. 37, 39.

²Ibid.

Table 29. Expenditures for health by farm, rural non-farm, and urban families,
United States, 1935-1936

Income level	Health expenditures											
	Average expenditure				Percentage of income				Percentage of all expenditures			
	All ¹	Farm ²	Rural non-farm ³	Urban ⁴	All ⁵	Farm ⁶	Rural non-farm ⁷	Urban ⁸	All ⁹	Farm ¹⁰	Rural non-farm ¹¹	Urban ¹²
Under \$500	\$ 22	\$ 22	\$ 20	\$ 26	7.1	6.5	5.8	7.9	4.7	4.1	4.8	4.4
\$500-\$750	29	29	34	30	4.7	4.6	5.4	4.6	4.1	4.0	4.9	4.1
\$750-\$1,000	38	40	37	39	4.3	4.5	4.2	4.4	4.2	4.4	4.2	4.2
\$1,000-\$1,250	47	50	50	47	4.2	4.4	4.4	4.1	4.2	4.5	4.5	4.1
\$1,250-\$1,500	57	55	58	61	4.2	4.0	4.2	4.4	4.3	4.3	4.4	4.5
\$1,500-\$1,750	71	64	72	74	4.4	3.9	4.5	4.6	4.7	4.6	4.8	4.7
\$1,750-\$2,000	79	77	83	81	4.3	4.1	4.5	4.3	4.7	5.0	4.8	4.6
\$2,000-\$3,500	91	83	89	98	4.1	3.7	4.0	4.4	4.6	4.9	4.6	4.8
\$2,500-\$3,000	109	90	121	115	4.0	3.3	4.5	4.2	4.7	4.8	5.3	4.8
\$3,000-\$4,000	152	111	146	142	3.9	3.3	4.3	4.1	4.8	5.2	5.3	4.9
\$4,000-\$5,000	156	106	160	186	3.6	2.4	3.6	4.2	4.8	4.4	5.0	5.3
\$5,000-\$10,000	248	152	310	234	3.6	2.3	4.5	4.1	5.6	3.2	7.9	5.6
\$10,000-\$15,000	227				2.0				3.7			
\$15,000-\$20,000	416				2.4				4.6			
\$20,000-over	837				2.0				5.6			
All levels	64				4.0				4.6			

¹Source:

U.S. National Resources Planning Committee. Family expenditure in the United States. Washington,

U.S. Govt. Print. Off. 1941. p. 37.

²Ibid., p. 51.

³Ibid., p. 56.

⁴Ibid., p. 61.

⁵Ibid., p. 37.

⁶Ibid., p. 51.

⁷Ibid., p. 56.

⁸Ibid., p. 61.

⁹Ibid., p. 38.

¹⁰Ibid., p. 51.

¹¹Ibid., p. 56.

¹²Ibid., p. 61.

Table 30. Expenditures for health by farm and rural non-farm families,
United States, 1941

Income level	Average		Percentage of total income ³				Percentage of total cash expenditures		
	expenditures ²		Percentage of total income ³				cash expenditures		
	having	:	Money income		Non-money		:	:	
	expend- itures ¹	:	Rural	:	Rural	:	Rural	:	Rural
	Farm	non-farm	Farm	non-farm	Farm	non-farm	Farm	non-farm	
\$ 0-\$ 499	81	\$ 26	\$ 23	24.5	21.7	7.3	6.4	8.1	7.6
\$ 500-\$ 999	93	36	42	10.3	12.0	4.7	5.5	8.1	7.1
\$ 1,000-\$1,499	97	50	59	6.9	8.1	4.0	4.8	7.5	5.8
\$ 1,500-\$1,999	95	61	75	5.3	6.5	3.5	4.3	6.6	5.6
\$ 2,000-\$2,499	99	82	94	5.0	5.8	3.7	4.2	7.4	5.6
\$ 2,500-\$2,999	98	106	103	5.3	5.2	3.9	3.8	7.8	5.1
\$ 3,000-\$4,999	100	131	137	4.5	4.7	3.5	3.7	7.6	5.6
All levels	95	60	67	5.3	5.9	3.6	4.0	7.3	5.8

¹Source: U.S. Bur. of Human Nutrition and Home Economics. Rural family spending and saving in wartime. U.S. Dept. of Agr. Misc. Pub. 520. 1943. p. 162. Based on sample of 1800 rural families.

²Ibid., p. 163.

³Calculated from data in Ibid., p. 162, 163. Average percentages are based on total number of families in each group.

rather than to those of farm families. This fact indicates that the way of living of farm families may be as important as availability of services with respect to these expenditures.

Families in the Illinois-Iowa farm section in the Consumer Purchases Study were in an intermediate rank among families of other sections of the country with respect to average expenditures at comparable income levels for most of the items of medical care and also to the frequency with which these outlays were made. The average expenditures for special practitioners were relatively high but the proportion of families using such services was relatively low in comparison to most of the other sections. For some reason, the expenditures for eye glasses tended to be low in this section.¹

¹Hollingsworth, op. cit., p. 59-60.

In the Consumer Purchases Study expenditures for health services by selected groups of families living in 20 small cities, 140 villages, and 64 counties of 12 farm sections were collected. The group did not include relief families, foreign born, or Negroes (except in the Southeast where the latter were included, thus the picture presented was a more favorable one than might have been found for one based on all population groups).

The areas in Iowa included in the survey were: cities--Dubuque, Boone; villages--Brooklyn, Bussey, Dallas, Earlham, Eddyville, Melcher, Montezuma, New Sharon, Pleasantville, State Center, and Victor; farms--Madison, Mahaska, Marion, Marshall, and Poweshiek counties. The schedules were filled in by trained field workers in interviews with the families.

Health expenditures of selected Iowa families. The direct relationship between family income and average expenditure and allied health service which is indicated above is not as readily apparent in a small study of expenditures of selected Iowa farm families. The health expenditures of Iowa farm families who are members of the Iowa Farm Business Associations do not show a consistent pattern during the years for which accounts are available, as indicated in Table 31.¹ This is due to the small number of families included. It is not, of course, a representative sample of Iowa farm families.

Their expenditures for health constitute a larger percentage of family income during the depression years than later when incomes are higher. They also show an increase in amount spent for health during the war.

For further analysis the accounts of 108 families, for whom there were records for a period of five years, were taken from this larger group. The average of their health expenditures and the proportion of average income and average cash expenditures it represents for each of the five years is shown in Table 32. For these families the proportion of income spent for health decreased as income increased, as shown by the Consumer Purchases Study. The proportion of cash expenditures varied somewhat less.

An analysis of the health expenditures of this selected group of 108 Iowa farm families over a five year period between 1938 and 1943 shows little relation between family income and expenditure for medical and allied health services. It must be remembered that these families

¹The accounts of these families have been sent in to the Iowa Extension Service for analysis each year since 1933. The number of families in different years ranged from 35 to 129.

Table 31. Average health expenditures, net income, and cash living expenditures of selected farm families, Iowa, 1933-1944

Year	Number of families	Average size of family	Average expenditure for health	Net income		Cash living expenditures	
				Average ¹	Per cent for health ²	Average ¹	Per cent for health ²
1933	17	4.0	35	497	7.0	800	5.8
1934	34	3.8	48	2,156	2.2	682	7.0
1935	46	4.0	96	2,633	3.7	951	10.1
1936	84	4.4	97	2,105	4.6	936	10.4
1937	100	4.5	70	1,827	3.8	1,133	6.2
1938	160	4.4	77	2,400	3.2	1,093	7.0
1939	188	4.4	89	2,896	3.1	1,171	7.6
1940	236	4.2	88	2,989	2.9	1,233	7.1
1941	200	4.2	90	5,327	1.7	1,442	7.9
1942	212	4.2	97	8,418	1.2	1,480	6.5
1943	166	4.2	119	8,170	1.5	1,440	8.3
1944	126	4.2	129	5,707	2.3	1,713	7.5

¹Source: Data for 1933-1942 from Simmons, Dorothy. Expenditure for living of Iowa Farm Business Association families. Iowa Agr. Exten. Serv., Ames, Iowa, Iowa State College. 1942. Mimeo. p. 16.

Data for 1943 from Budolfson, Marie. Expenditures for living, 166 Iowa Farm Business Association families. Iowa Agr. Exten. Serv. Ames, Iowa, Iowa State College. 1944.

Data for 1944 from Budolfson, Marie. Expenditures for living, 126 Iowa Farm Business Association families. Iowa Agr. Exten. Serv. Ames, Iowa, Iowa State College. 1945. p. 3.

²Calculated by author from data cited.

Table 32. Average health expenditures, net income, and cash living expenditures of 108 selected Iowa¹ farm families over five-year period, 1938-1943

Year	Average health expenditures			Cash living expenditures		
	Total net income			expenditures		
	Per cent			Per cent		
	Average	for health	Average	Average	for health	Average
1938, 1939	89	2968	3.0	1132	7.9	
1939, 1940	92	3080	3.0	1233	7.5	
1941, 1942	104	5399	1.9	1519	6.8	
1942, 1943	91	8554	1.1	1675	5.4	
1943, 1944	134	9384	1.4	1571	8.5	
Average	101.3	5901.1	1.7	1396.3	7.3	

¹ Calculated by the author from data collected from home accounts of Iowa Farm Business Association families by Iowa Extension Service, Ames, Iowa. Data for some of families cover 1938 to 1942 and for others 1939 to 1943.

represented for the most part high income groups. The families were divided into two groups, those with an average income of less than \$5,000 over a period of five years and those with an average income over \$5,000. There was no pattern of difference between the two groups as to the number of families having certain annual expenditures for health services. The high expenditures for health were as likely to fall in the group with income under \$5,000 as over \$5,000 (See Figure 10 and Table 33).

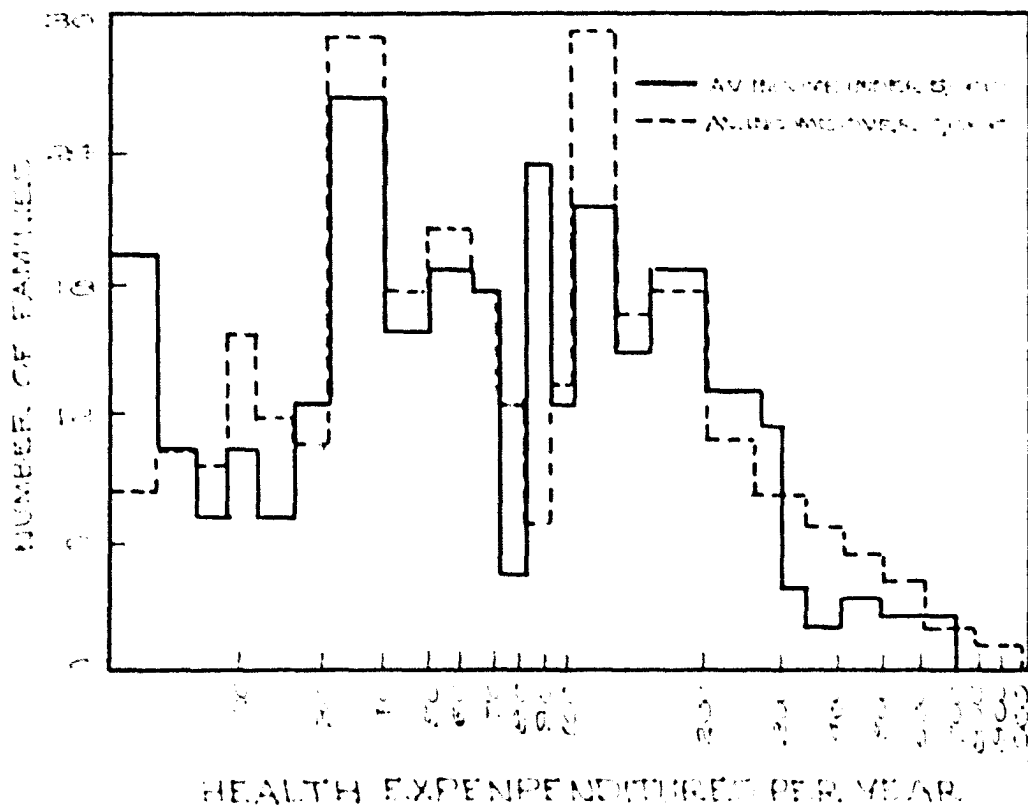
When the 108 Iowa farm families were classified into six income groups the per capita annual cash living expenditures increased with size of income. However, the per capita annual expenditures for health did not show any definite pattern of change, nor did the percentage of cash living expenditures spent for health services show such a pattern (See Table 34).

There was almost no correlation between annual family income and expenditures for health services among these 108 Iowa farm families. The coefficient of correlation between the average income and average expenditure for health over the five year period was 0.14,¹ which is below the five per cent point of 0.195 and thus is not significant. There was, however, correlation between cash living expenditures and health expenditures, 0.46.² This is highly significant, being greater than the 0.228 required for the 1 per cent point (See Figures 11 and 12). The average expenditure for clothing, however, shows correlation with both total net income and cash

¹As calculated by the author from data in the home accounts of 108 farm families in the Iowa Farm Business Associations. Iowa Agr. Ext. Serv. Ames, Iowa.

²Ibid.

Figure 10. Distribution of annual health expenditure of 108 selected farm families with five-year average net incomes above and below \$5,000, Iowa, 1938-1943¹



¹Source: Calculated from accounts of families of Iowa Farm Business Associations.

Table 33. Distribution of annual health expenditures in selected Iowa farm families, 1938-1943¹

Annual expenditure for health	Number of families having annual expenditures	
	5-year average income under \$5,000	5-year average income over \$5,000
\$ 0- 4.99	19	8
5- 9.99	10	10
10-14.99	7	9
15-19.99	10	15
20-24.99	7	11
25-29.99	12	10
30-39.99	26	29
40-49.99	15	16
50-59.99	18	20
60-69.99	17	17
70-79.99	4	12
80-89.99	23	6
90-99.99	12	13
100-124.99	21	29
125-149.99	14	16
150-199.99	19	17
200-249.99	12	10
250-299.99	11	7
300-349.99	3	6
350-399.99	1	5
400-499.99	3	4
500-749.99	2	2
750-999.99		2
1000- & over	—	1
	265	278

¹ Calculated from accounts of families of Iowa Farm Business Associations.

Table 34. Average annual expenditures for family living and for health of 108 selected farm families classified by five-year averages of annual net income, Iowa, 1938-1943¹

Income	Number of families	Size of family	Average annual expenditures					
			Cash living		Health		Per cent of cash living	
			expenditures		expenditures		expenditure for health	
			Per family	Per capita	Per family	Per capita	Per family	Per capita
Under \$2,999	9	3	898.33	260.81	75.00	21.77	8.35	8.35
\$3,000-3,999	24	4	1211.79	290.83	96.67	23.20	7.98	7.98
\$4,000-4,999	18	4	1270.56	297.01	88.44	20.68	6.96	6.96
\$5,000-5,999	13	4	1490.54	339.95	93.77	21.39	6.29	6.29
\$6,000-7,999	26	4	1593.15	369.84	115.73	26.87	7.26	7.27
\$8,000 and over	18	5	1669.94	333.99	120.00	24.00	7.19	7.19
Total	108							

¹Source: Computed by author from home account books of members of Iowa Farm Business Associations, Iowa Agr. Ext. Serv. Ames, Iowa. Data from some families cover 1938 to 1942 and for others 1939 to 1943

Figure 11. Relation between five-year average of expenditures for health and net income of 108 selected farm families, Iowa, 1938-1943

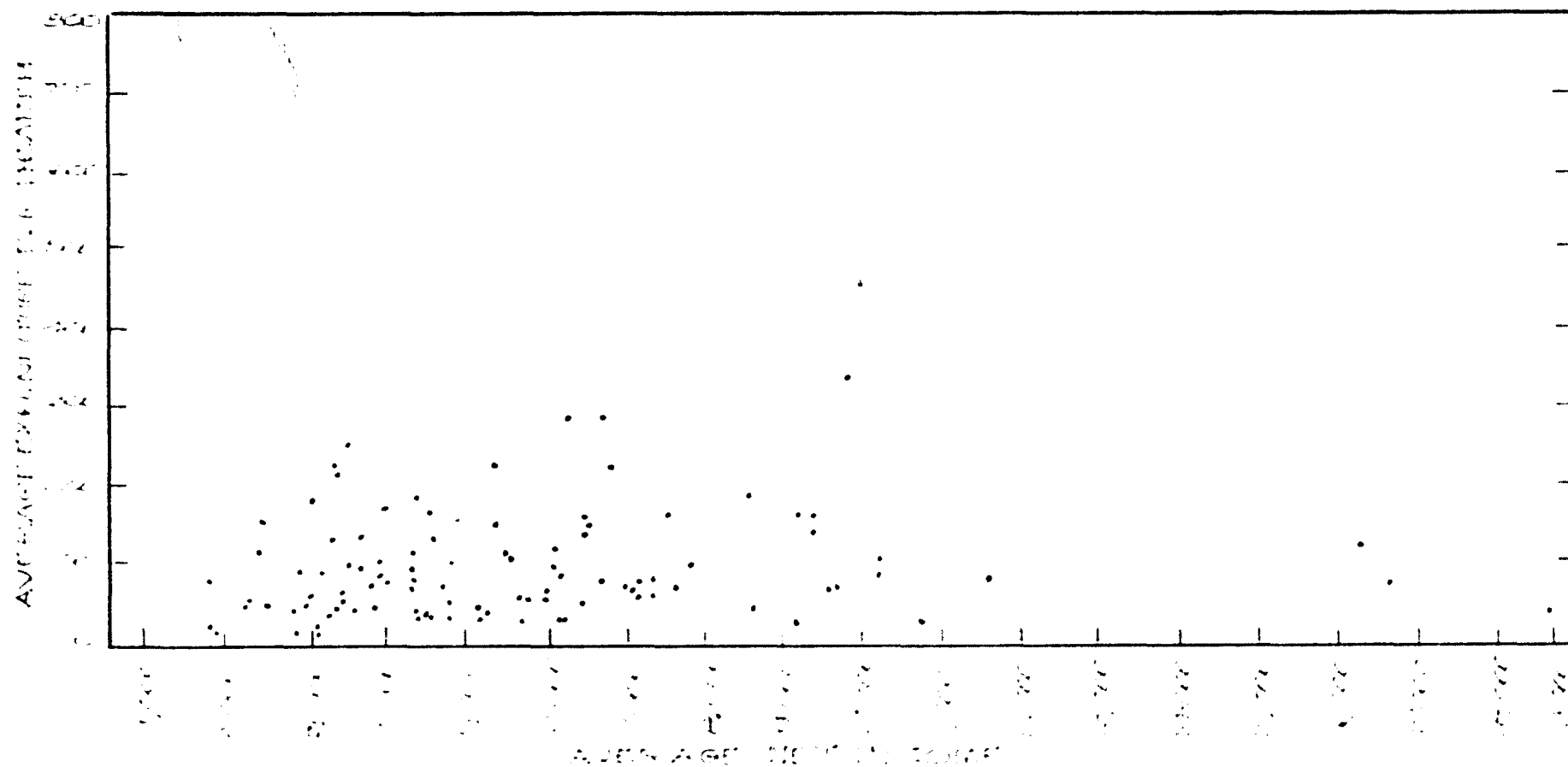


Figure 12. Relation between five-year averages of expenditures
for health and cash living expenditures of 108
selected farm families, Iowa, 1938-1942¹

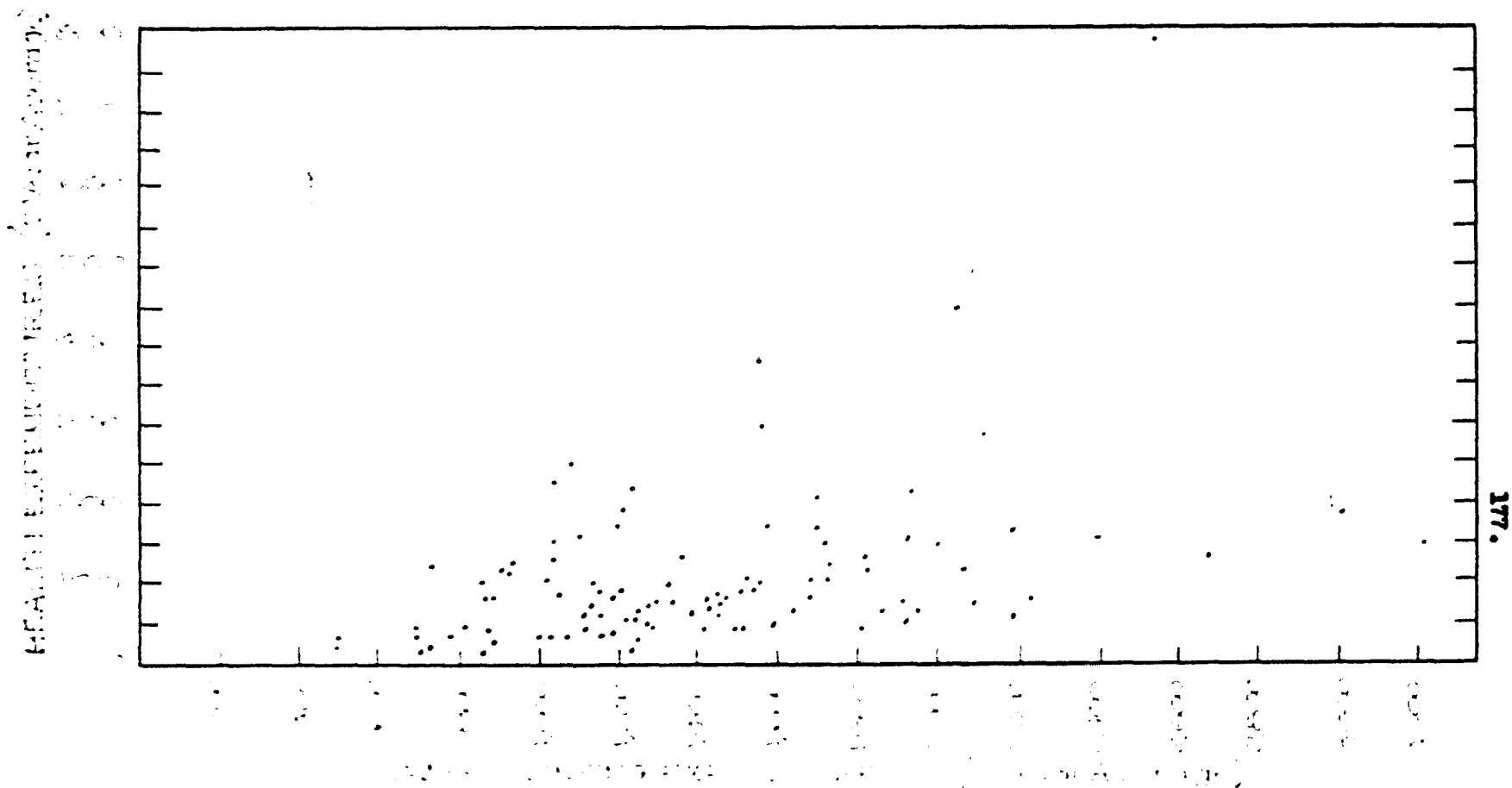


Figure 13. Relation between five-year average of expenditures for clothing and net income of 106 selected farm families, Iowa, 1930-1945¹

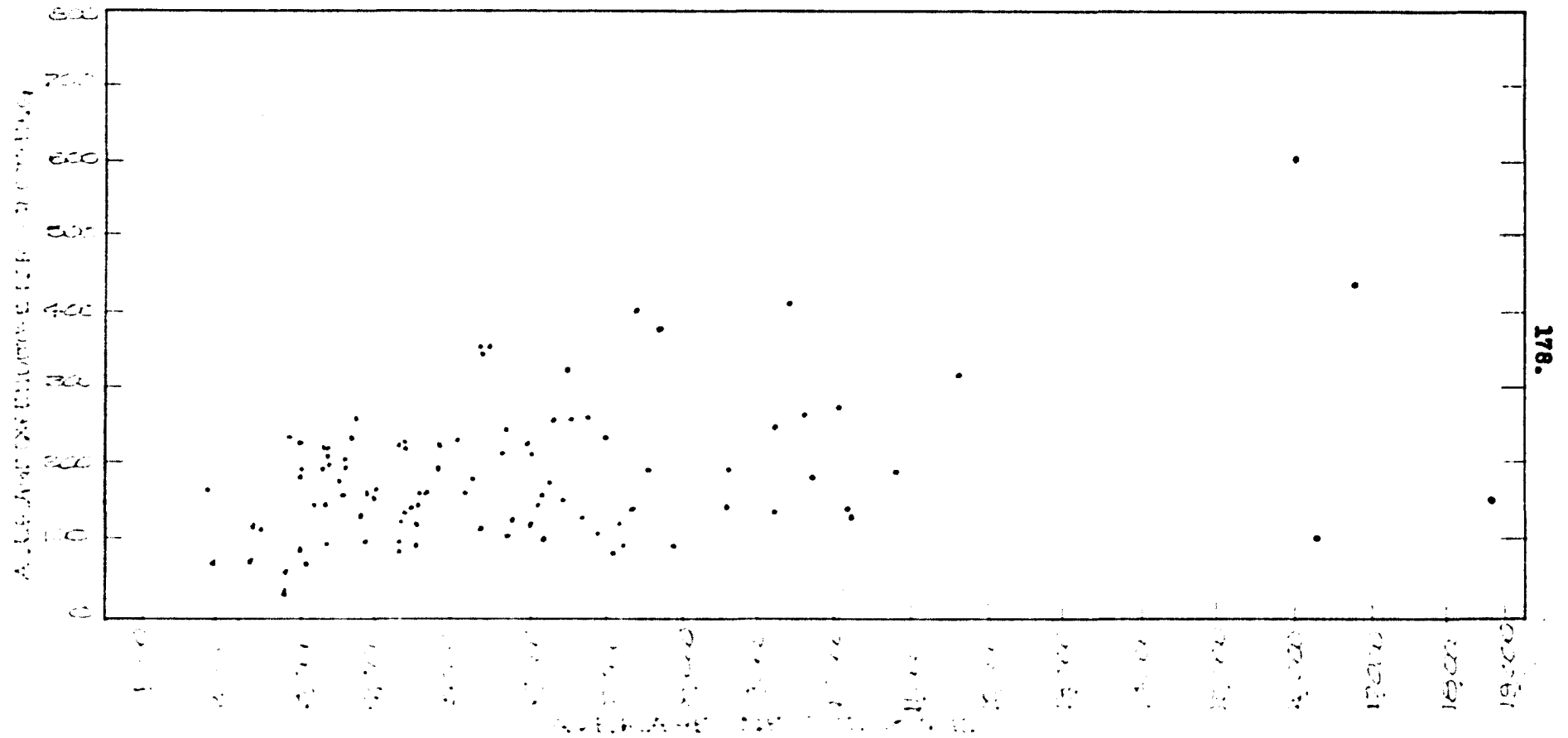
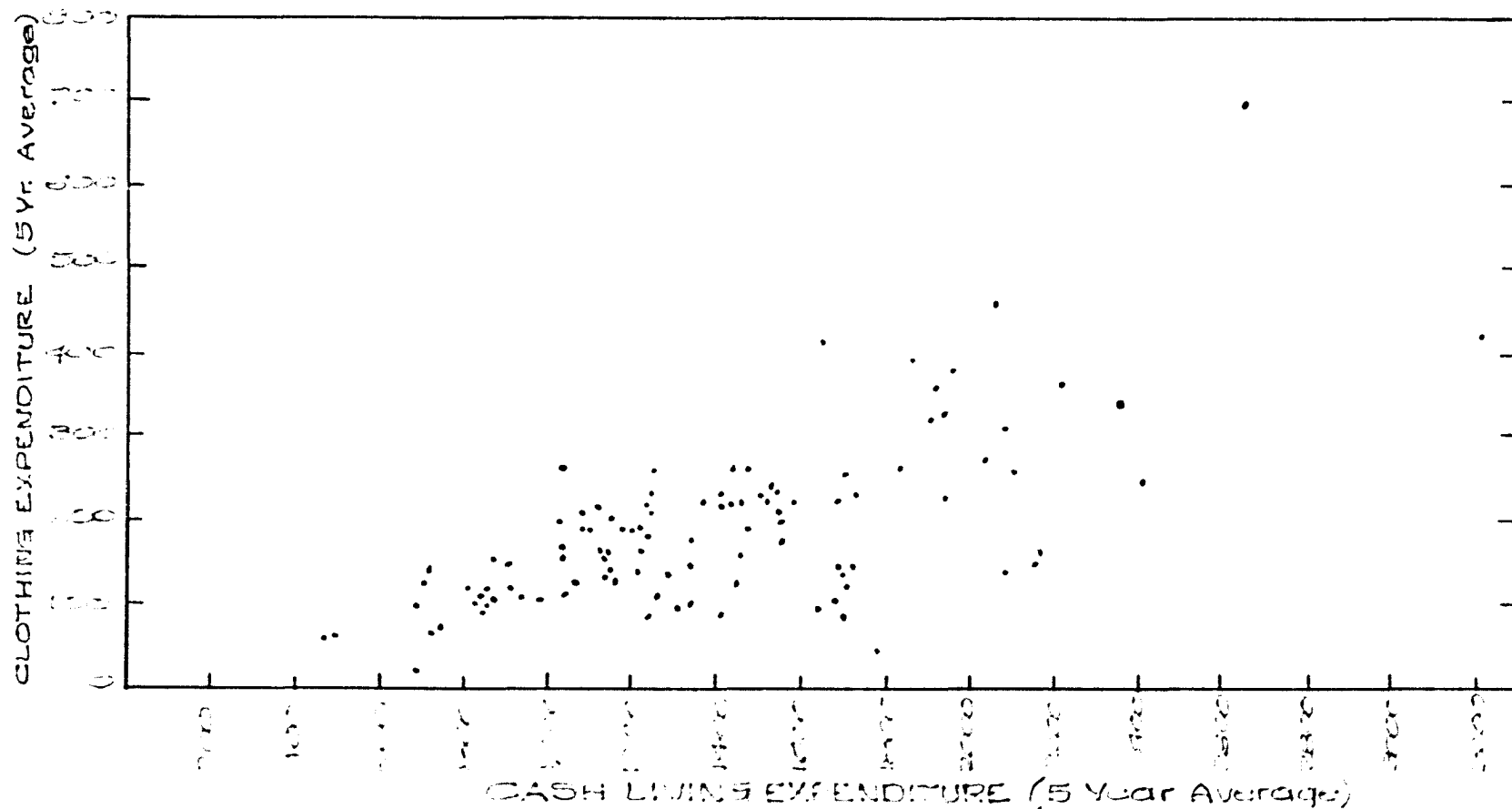


Figure 14. Relation between five-year averages of expenditures for clothing and cash living expenditures of 108 selected farm families, Iowa, 1938-1943



living expenditures. The coefficient of correlation between expenditure for clothing and total net income was 0.31, which is more than 0.254 for the one per cent point. The coefficient of correlation between expenditures for clothing and total cash living expenditures was 0.69, which is still higher. (See Figures 13 and 14). This correlation might be expected, since clothing expenditures can be more readily predicted and more easily adjusted to income than health expenditures can be.

The above data indicate that classification of farm families by total cash living expenditures reveal important relationships which are not brought out in classification by family income. Both types of classification are valuable. It is likely that classification by expenditures is more useful for farm families than for urban families. Farm families save in proportion more of their incomes than do non-farm families.

Expenditures for health in families of various sizes

Expenditures for medical care do not seem to differ consistently among various family sizes. The differences between average outlays for the largest and smallest families are not commensurate with the differences in family size, according to the Consumer Purchases Study. As family size increased the per capita outlay for health decreased. The proportion of income for health services remained about the same for each income group regardless of size of family. The level of family income apparently had more effect on total amount spent for health than did size of family. It must be remembered, of course, that as the family increases in size there is more pressure on expenditures for other needs as well as for health.

The type of medical expenditure seemed to be influenced by family size. Since the needs of more persons must be met there is relatively more expense for certain items such as medicine. That is, families tend toward more self-medication. The family's position in the life cycle also affects outlay for medical care. The younger families spend more for obstetricians and pediatricians. The older families spend more for oculists' services and hospital care for the maladies more common in old age. Differences in family composition are reflected more clearly in the component items of the medical bill than in the total outlay.

No apparent difference was reflected for families of the same size and income in various types of communities between average expenditure for health and the percentage of family income which this represented (See Table 35).

Relative Preference for Medical and Allied Services and Other Consumer Goods and Services

Despite recognition by consumers of physical conditions needing care and the availability of facilities for this care, there are many cases in which other goods and services are chosen in preference to health care. Several explanations may be offered for this fact. Very often immediate pleasures may seem more desirable than health care for which the need is not at the moment pressing. Even for families able to purchase medical care, in many cases more pressing attractions influence selections: various forms of recreation, small luxuries, conspicuous consumption in various forms.

Table 35. Average and percentage expenditures of rural and urban families of three sizes for medical care at selected income levels, United States, 1935-1936¹

Income level of size of family	Expenditures for medical care ²							
	Amount				Per cent			
	1 ³ All	2 ⁴ Farm	3 ⁵ non-farm	4 ⁶ Urban	5 ⁷ All	6 ⁸ Farm	7 ⁹ non-farm	8 ¹⁰ Urban
\$ 750-\$1000								
2 persons	\$ 36	\$ 36	\$ 36	\$ 37	4.1	4.1	4.3	4.2
3 persons	41	42	38	41	4.6	4.8	4.3	4.6
7 or more	34	37	29	30	3.8	4.2	3.2	3.3
\$1500-\$1750								
2 persons	64	55	58	66	4.0	3.4	3.6	4.1
3 or 6 persons	75	65	75	79	4.6	4.0	4.6	4.9
7 or more	67	68	87	58	4.1	4.2	5.4	3.5
\$2500-\$3000								
2 persons	104	83	112	105	3.8	3.0	4.1	3.9
3 or 6 persons	114	83	123	117	4.2	3.3	4.5	4.3
7 or more	113	101	122	116	4.1	3.7	4.5	4.2
\$5000-\$10,000								
2 persons	251	87	145	303	3.6	1.3	2.1	4.4
3 or 6 persons	274	132	381	268	4.0	2.4	5.6	3.9
7 or more	310	180	199	395	4.6	2.7	2.7	5.7

¹Source: U.S. National Resources Planning Board. Family expenditures in the United States. Washington, U.S. Govt. Print. Off. 1941.p. 21.

²Ibid., p.21.

³Ibid., p. 22.

⁴Ibid., p. 22.

⁵Ibid., p. 99.

⁶Ibid., p. 101.

⁷Ibid., p. 103.

⁸Ibid., p. 105.

Certain types of medical care, including preventive measures, dental care, and treatment of some chronic ailments seem desirable but not imperative. Some people may be overly optimistic and hope that conditions will cure themselves. Others may not want to face reality. They trust to good fortune to see them through. Then too we have no fixed standards as to what is important or essential. What seems important and necessary to one individual is not necessarily so to another.

The annual national expenditure for such luxuries as tobacco, motion pictures, and jewelry is occasionally cited as an indication of ability to care for medical care. However, national expenditures are deceptive to use as a measure of the ability of individual families to pay for certain items. For one thing, the national income is not evenly distributed, nor are needs for health services.

People on the whole spend their resources for what they desire at a time. When money is not needed for medical care it can be spent for other goods and services. Some families live to the hilt of their income, giving precedence to luxuries over needs. Other families do not foresee need for medical care, due to the unpredictability of incidence of needs on health services as discussed above. Still others may wish to plan for possible health expenditures but have no leeway beyond necessary current expenses for living.

Community Income as a Factor Affecting Demand for Medical
and Allied Health Services

It is commonly supposed that the level of income in a community is an important factor affecting both the supply and demand for medical and allied health services. Various studies bear out this hypothesis. The National Health Survey, for example, has indicated an inverse relationship between need for medical and allied health services and economic status. These studies have included for the most part urban localities.

That there is a correlation between infant mortality rates and per capita income of various states is indicated by the fact that the coefficient of correlation between the two calculated by the author from 1940 data is 0.46.¹ This is above the 0.39 required for the one per cent point. An attempt was made by the author to determine a similar coefficient of correlation between infant mortality rates and level of income of Iowa counties. However, the data for infant mortality rates by counties were on too small a basis for annual comparisons and the estimates of income too unreliable for such a figure to be of any value. In order for such an analysis to be made doubtless a larger area than counties must be used.

One study which shows a direct relationship between mortality rates and economic status in rural areas was the analysis of data for 1930 in two groups of counties in Ohio. One group comprised poor agricultural areas, the other good agricultural areas. There was a negative correlation between

¹ Calculated from: (1) U.S. Bur. of Census. Vital Statistics-Special Reports, 1942. Vol. 20, no. 2. p. 21.1945; and (2) Martin, John L. Income payments to individuals by states, 1929-39. Survey of Current Business. 21, no. 10:14. 1941.

mortality rate and agricultural productivity; that is, the mortality rate was lowest in the best agricultural areas. The mortality rates in the areas of poor economic status were found to be about 10 per cent greater than the corresponding rates in the areas of good economic status when adjustments were made for differences in age distribution of the populations involved. The infant mortality rate was found to be more than 40 per cent greater in the poor economic areas. This was true for every cause of infant deaths except congenital malformation. It was especially true for deaths due to diarrhea, enteritis, and the principal contagious diseases of childhood. It was found that "the differences in mortality rates were greatest for the diseases which modern medical and allied health practices have been most successful in controlling or preventing."¹

An analysis by the United States Public Health Service of the supply of general hospital beds, their utilization and the per capita payment for them in various states as related to the per capita income of the respective states indicates a positive correlation between these factors. For example, as shown in Table 36 the average number of general hospital beds per 1,000 population in 1935-1937 dropped from 4.16 in the quartile of states with highest income to 1.72 in the lowest quartile. At the same time the patient days of care per 1,000 population dropped from 1,107.7 in the highest income quartile to 376.9 in the lowest. The percentage of beds occupied dropped from 74.3 to 63.0; the per capita payment for hospital care, from all sources, from \$5.27 to \$1.40; and the annual payment for general hospital care per \$1,000 income within the state, from \$8.42 to \$8.06.²

¹Dorn, Harold F. Mortality rates and economic status in rural areas. U.S. Public Health Reports 55:12. 1940. See also *ibid.*, p. 5-7, 11.

²U.S. Bur. of the Census. Hospital and other institutional services, 1939. Part II. Distribution of hospitals and other institutional facilities. Vital Statistics-Special Reports. Vol. 15, no. 53. p. 517. 1942.

Table 36. Use of general hospitals in states grouped according to per capita income and in Iowa, 1935-1937.

Population groups, United States total and by income groups as arranged from high to low, Iowa, total	: : Number of : beds per : 1,000 : population ¹ :	: Patient : days of : care per : 1,000 pop- : ulation ² :	: : Percentage : of beds : occupied ³ :	: : Per capita : payment of : care (all : sources) ⁴ :	: Annual payment : per \$1,000 : income within : states : (all sources) :
United States	3.14	780.0	69.7	\$ 3.37	\$ 7.49
First quarter	4.16	1108.7	74.3	5.27	8.42
Second quarter	3.36	824.3	63.7	3.25	7.10
Third quarter	2.51	550.7	62.0	2.15	6.18
Fourth quarter	1.72	376.9	63.0	1.40	6.06
Iowa ⁶	2.73	598.3	61.1	2.38	6.56

¹Source: Pennell, Elliott M., Mountin, Joseph M., and Pearson, May. Existence and use of hospital facilities among the several states in relation to wealth as expressed by per capita income. U.S. Public Health Reports 55:837. 1940.

²Ibid., p. 838.

³Ibid., p. 839.

⁴Ibid., p. 840.

⁵Ibid., p. 841.

⁶Iowa is in the third quarter, in thirty-first place. That is, thirty states had higher per capita income in 1935-1937.

In 1940 the coefficient of correlation between the number of general hospital beds per 1,000 population and the per capita income among the states was 0.68 as calculated by the author from data published by the American Medical Association and the United States Health Department of Commerce.¹ This is highly significant, being more than the 0.45 required for the one per cent point. The coefficient of correlation of 0.37 between the number of physicians and the per capita income among the states, similarly calculated, is also highly significant.

No correlation appears between the per capita township expenditures for public health service as reported in 90 Iowa counties in 1936² and the rural level of living indices as reported for these counties by Hagood.³ The coefficient of correlation was 0.13,⁴ which is less than the 0.205 required for the five per cent point. There may be some correlation between township and town per capita expenditures among the counties. The coefficient of correlation between these two was 0.21.⁵ This barely reaches the five per cent point. Some other explanation than community income must be offered for variation in expenditures for public health services among localities in Iowa. Very likely it is lack of recognition of need and lack of efficient organization of public health services in a local level in rural areas.

¹As calculated from (a) number of general hospital beds per 1,000 population as reported in Hospital Service in the United States, J. Amer. Med'l Assoc. 116:1058. 1941, and (b) per capita income from states as reported by John Martin in Survey of Current Business 21, no. 8:14. 1941.

²Iowa State Planning Board, op. cit., p. 102.

³Hagood, op. cit., p.

⁴As calculated from data cited in footnotes 2 and 3.

⁵As calculated from data cited in footnote 2.

Summary and Conclusions

It is probable that some differences in need for health services of various types occur between rural and urban areas in Iowa because of differences in age distribution of population in the two types of localities. The relatively greater proportion of children and old people in rural areas indicates greater need for services relating to illnesses peculiar to these age groups.

More data on the use of available health services in Iowa would be helpful. Expenditure studies showing composition as well as total amount of expenditures for health would be valuable. Studies on a national scale indicate that rural people in general receive fewer health services than do urban residents. Specific data for Iowa are not available. One study has indicated that farm families in Iowa and Illinois receive somewhat fewer home and office calls of physicians than do farm families in other parts of the Middle Atlantic and North Central regions, whose need for services may be assumed to be somewhat similar. They receive somewhat more of these services than farm families in the South, however, whereas the need for the services very likely is less than the need in the South.

Except for data on the attendance of physicians at birth, as reported to the State Department of Health, data on the use of physicians' services in Iowa are lacking. This is another area in which research well could be undertaken.

Iowa is one of the few states reporting nearly 100 per cent of births attended by physicians. This is true in both rural and urban areas. Nearly

75 per cent of Iowa births reported in 1942 occurred in hospitals. The percentage of births occurring in hospitals was somewhat less, 60.5 per cent, in the case of rural residents. The data do not indicate the extent of prenatal and post-natal care received in Iowa.

About 10 per cent of the population of the United States is hospitalized annually, as reported by the American Medical Association. One national study has indicated that a lower proportion than 10 per cent of farm people were hospitalized during the year the study was made.

It appears that hospital occupancy rates are greater in areas having the most hospital facilities, whereas one might have expected that existing facilities in areas with smaller supply would be more fully used. The explanation probably lies in the fact that areas with fewer facilities are those with low per capita income, which results also in lower ability to purchase services.

Although Iowa is a state with relatively high income, the occupancy rate in general hospitals is less than the proportion recommended as most efficient under existing organizations. At the same time the supply of general hospital beds is less than the standard recommended by some authorities. The question remains to be answered as to whether there is any less need for hospital services in Iowa than in other states or whether services needed by Iowans are not being received.

Various studies indicate that consumer income affects both need for medical and allied health services and the effective demand for such services. The effects are in opposite directions, however. Low consumer

income results in greater need for health services. On the other hand, it results in smaller effective demand for them.

Data concerning the relation between family or per capita income and need for health services among Iowa families are not readily available. Since the level of living in rural areas of Iowa is high, it is likely that relative need for health services, insofar as need is affected by income, is less than in some other states. The relatively low mortality rates bear out this assumption. More specific data on this relationship would be helpful in estimating needs for health services in Iowa and the adequacy of meeting them.

National surveys indicate that the percentage of families having expenditures for health among low income families is less than among those receiving higher incomes. In the Consumer Purchases study, for example, only 81 per cent of the farm families with annual incomes under \$500 purchased health services of some type, in contrast to over 95 per cent of the families with incomes of \$3,000 or more.

Several studies have indicated that low income families receive fewer home and office calls of physicians and fewer dental and nursing services. There is also some evidence that low income families purchase relatively more medicine and drugs. These data indicate more self-medication among low income families.

Per capita and per family expenditures for health among both rural and urban groups in the United States increase with family income. Per capita expenditures are greater among rural non-farm and urban families

than among farm families of the same income groups. The percentage of total income spent for health tends to decrease somewhat as family income increases. This is more apparent among farm than among rural non-farm and urban families. The percentage of total expenditures going for health services increases slightly with family income.

The small group of Iowa families whose expenditures are analyzed in this thesis, of course, is not comparable to the large number of families in the other studies. The direct relationship between family income and average expenditures indicated by national studies is not apparent in these selected Iowa families, among whom there is little correlation between the two. It is likely that with a larger group of families, and a representative group, there would be more correlation between income and expenditures for health. However, even among the small group of Iowa families there is a highly significant correlation between expenditure for health and total cash living expenditures.

PART III. SUPPLY OF MEDICAL AND
ALLIED HEALTH SERVICES

SUPPLY OF PHYSICIANS WITH SPECIAL REFERENCE
TO RURAL AREAS OF IOWA¹

In examining the supply of physicians in rural Iowa it is helpful first to consider the standards which are useful in measuring the supply. In this section such standards are considered first. Next the sources of data are discussed briefly. Then are examined differences in ratios of physicians to population among the states, trends in these ratios in the United States, differences among ratios in communities of various sizes, and trends in the ratios with special reference to rural areas. Data on specialists are included. Other characteristics of the supply of physicians in rural areas are taken into account. Attention is turned as well to factors affecting the supply of physicians both in toto and with respect to rural communities and indications of the future of supply of physicians in these areas.

Standards for Measuring Adequacy of Supply of
Medical and Allied Health Services

Standards for measuring adequacy of supply of health services in general

In considering the supply of medical and allied health facilities measures are needed to assist in providing answers to the following

¹Only medical physicians are included in the present discussion. Osteopathic physicians are excluded, as are chiropractors and cultists.

questions: How bountiful are the services? How good are they? How nearly do they meet needs for the service? It is also important to see who sets the standards and the process by which they affect demand.

The best test or standard by which to measure adequacy of supply is of course the extent to which the health of people is maintained insofar as it is affected by the facilities being considered. Data on health status have already been presented in Part II where it was concluded that health needs are inadequately met.

Quantitative standards. A common quantitative measure of the supply of doctors is the population-physician ratio, expressed either in terms of the number of physicians per unit of population or in terms of the number of persons per physician. Such a measure is, however, crude. The ratio of physicians to population is not in itself evidence of the adequacy of the supply of physicians. There are other factors, such as the age, training, experience and efficiency of the physicians and the flow of patients between areas, particularly the rural to urban flow. Granting that a method could be devised for the ratio of these factors, it still would not measure the amount of service received by the population as a whole or by groups within the population. The quality of the services and the extent to which they fulfill the need for them are difficult to measure. Further, in using the population-physician ratio for place-to-place and time-to-time comparisons there is little value unless the physicians and populations in the places or times are also comparable. Ciocco has stated that the problem of determining what are adequate ratios

of medical facilities to population is very difficult and has not been effectively approached as yet.¹

In making comparisons by size of community quantitative standards must be used with care. Any ratio of physicians or hospitals to the population will tend to understate the facilities available to people in small communities and overstate those available in large communities because of the fact that people in smaller places go to larger trading centers. This fact relates more to specialists than to general practitioners. The larger the geographic unit the more nearly any ratio of facilities to the population within it measures facilities available. Comparisons among states are thus more valid than among towns and cities within a state classified by population. Even state ratios may have considerable bias because of the flow of patients between areas. One would expect, for example, that the ratio of physicians to population of New York State would overstate the relative physicians, specialists in particular, available, in contrast with the ratio of the state of New Jersey.

It must be remembered also that the ratio for a large unit necessarily represents an average of ratios existing in the localities within the area and obscures variations which are often very large. For example, Cioocco points out that there were 750 persons per physician in the United States in 1940, but the ratio in New York was 490 while in Mississippi it was 1,500. Within New York in 1938 the county ratios ranged from 210 to 1,090; within

¹Cioocco, Antonio, Chief of Statistical Methods Section of U.S. Public Health Service. Information on quantitative standards for medical and allied health services. Washington, D.C. Private communication. 1945.

Mississippi from 650 to 4,260.¹ In Iowa the range in 1938 was from 150 in Johnson county, where the University Hospital is located, to 1,682 in Hancock county.² However, in smaller geographical units, the error introduced by the flow of patients into or out of the area may be of great importance.

Qualitative standards. The most important standards of quality are the minimum standards set up for the licensing of physicians, other personnel and hospitals by the state and by professional groups. These standards are of two types: mandatory and permissive. In the case of licensing of physicians they are mandatory. In the case of certification of hospitals, they are permissive.

Standards both qualitative and quantitative for the most part are developed by the professional groups. Quantitative standards for the most part remain as goals to achieve, whereas many of the qualitative standards, especially those relating to minimum standards, have been made mandatory through state legislation. Some quality standards set by professional groups are not, however, mandatory, e.g., the certification of specialists. A physician must meet minimum standards set by the state in order to practice but he may proclaim himself a specialist without meeting additional voluntary standards set by the Advisory Board for Medical Specialists, a professional group.

In the sections which follow on physicians, hospitals, and public health further consideration is given to standards for each.

¹Ciocco, Antonio, Davis, Burnet M., and Altman, Isador. Measures of medical resources and requirements. *Med'l Care* 3:314, 315. 1943.

²American Medical Association. Directory Dept. Number of physicians in the United States by counties. Chicago, The Association. 1938. p. 28-31.

Standards for determining adequacy of supply of physicians

The most important standards to note with respect to the supply of physicians are quantitative standards on the basis of physician-population ratio. Standards of quality are extremely difficult to set up. Thus far only standards required for training of physicians, both for licensing of general practitioners and the certification of specialists, have been attempted.

Quantitative standards. The standard used in this thesis for measuring the supply of physicians in Iowa is one recommended by the committee on the Costs of Medical Care. This standard is the result of a definite effort to work out a scientific basis for number of physicians needed per unit of population.

Suggested standards for physician-population ratio were published during 1933 by the committee on the Costs of Medical Care.¹ A total of 135 physicians per 100,000 standard population² was suggested for all work

¹ Lee and Jones, op. cit., p. 111-123, 300-302. The estimates were based on data from earlier surveys of sickness and health defects and time spent in services. Quantitative estimates of need for medical service expressed in units of services were designed to exclude, as far as possible, all economic and organizational factors. For example, the number of "physician-hours" required for diagnosis and treatment of diseases is independent of the method of practice whether it is private practice or group clinics or other types. The suggested standards for number of physicians needed were based on the assumption that a physician "produces" 2,000 physician-hours a year in a 48 week year, with six days work of eight hours deducted for necessary travel.

² Ibid., p. 115. The standard population on which this estimate was based had the characteristics as to age, race, sex, and geographical distribution as the population of the United States in 1930 according to the 1930 census (Ibid., p. 94).

in prevention, diagnosis, and treatment. Broken up into smaller categories, this figure represents an estimated need per 100,000 population of 38 physicians for preventive services for individuals, 14 physicians for puerperal conditions, 84 for diagnosis and treatment. In addition the services of seven physicians were recommended for refractions.¹ Transposed into ratios of population per physician these figures represent a standard of 742 persons per physician for all work in prevention, diagnosis, and treatment. It is the latter standard which is used in this thesis.

A wartime emergency standard for physician-population ratio was adopted by the Procurement and Assignment Service of the War Manpower Commission as the minimum below which the civilian health would be endangered.² The ratio adopted was looked upon not as an ideal but as a suitable standard to use for the duration of the war. It sought to establish a temporary standard of one effective practitioner of medicine per 1,500 population. The standard was accepted by the United States Public Health Service for this period.³

The standard of one physician per 1,000 population is frequently quoted as an adequate standard. Its origin is unknown. No professional group has officially adopted it. The basis on which the figure was set apparently is unknown.⁴

In estimating the supply of physicians in an area the population of surrounding farm areas must be included as well as the residents of a

¹Ibid., p. 115.

²Senate. Committee on Education and Labor. Investigation of Manpower Resources. Hearings ... Seventy-eighth Congress, second session, on S Res. 291. Washington, U.S. Govt. Print. Off. 1943. p. 662.

³Confirmed by Cicco. See footnote 1 p. 194.

⁴Ibid.

particular town or city. In an analysis by the Bureau of Medical Economics of the American Medical Association, the number of people outside each incorporated municipality and dependent on medical facilities in the municipality arbitrarily was assumed to be approximately the same regardless of the size of the municipality, whether 1,000 or 100,000. The total population outside of municipalities was divided by the total number of municipalities in order to obtain the number to be added to the population of each municipality. The quotient was then multiplied by the number of cities in each of the population groups.¹

This method might exaggerate the population per physician in cities under 5,000 and under-estimate those in larger cities. In Iowa, however, the distribution of farm families throughout the state is fairly even so that such a method appears reasonably satisfactory. Nevertheless, the method still is a crude one. The same method was used by Mengelberg and Anderson in a study of physicians in Iowa.²

Indistinct line between quantitative and qualitative standards. The borderline between quantitative and qualitative standards for physicians is not always clear. One qualitative aspect entered into the emergency standard of the War Manpower Commission inasmuch as age and differences in the ability of the physicians was considered. In calculating the number of "effective" physicians available as of November 1, 1942, the Procurement and Assignment Service considered the services of physicians over 65 years

¹American Medical Association. Bureau of Medical Economics. Distribution of physicians in the United States. Chicago, The Association. Revised 1936, p. 18.

²See footnote 1, p. 220.

of age was discounted one-third because of lowered efficiency due to old age. That is, the number of effective practicing physicians was taken to be 66.7 per cent of the practicing physicians over 65 years of age. In addition, the number of physicians under 65 years of age was discounted five per cent to allow for other types of inefficiency.¹ No basis for the weighting was stated.

A method of evaluating capacity of a physician to serve according to his age also has been developed by the United States Public Health Service. The "service equivalent" of a physician is defined as "the decimal fraction obtained by dividing the average weekly number of patients seen by a physician of designated age by the corresponding number seen by a physician at the peak of his career".² The peak of activity of an average physician in private practice, as shown by various studies,³ is reached about age 40, when the physician sees approximately 170 patients a week. This age was taken as unity for one full service year. Index values were determined by reducing the value for average weekly patient loads at each five year interval to relatives.⁴ It is 0.25 at age 26, 0.50 at age 28, 0.75 at age 31, 1.0 at age 40, 0.75 at age 53, 0.5 at age 64, 0.25 at age 75.⁵

¹U.S. Congress, Hearings on S. Res. 291, p. 662.

²Pennell, Elliott H. Location and movement of physicians: methods for estimating physicians' resources. U.S. Public Health Reports 59:282. 1944.

³Ibid., p. 288, 289. Mainly Leven, in the Committee on Cost of Medical Care, and Ciocco, Pond, and Altman, in unpublished data for the States of Maryland and Georgia.

⁴Ibid., p. 282.

⁵Ibid., p. 289, 290.

It is difficult to classify physicians as to whether they are in active practice or retired. The physician may be classified in active practice but be carrying a very light patient load. Conversely, so-called retired physicians may have a few patients. Ciocco and others of the United States Public Health Service found that active physicians age 65 or over had only 47 per cent as many patients per week as those under 65.¹ These might be regarded as semi-retired.

The appraisal of the adequacy of supply of physicians in a community, or a comparison of adequacy between communities, is of course more meaningful if the total number of physicians can be translated into some standard service equivalent such as the one for age. It is recognized that this adjustment for age is at best a crude one. It must be remembered that age is not the only factor entering into differences in effective supply available.

Qualitative standards. For the most part, qualitative standards may be considered as based on training and experience. The requirements for licensing of physicians are an example.

Standards for the approval of specialists by specialty examining and certifying boards are another example. The minimum qualifications required for certification as a specialist were adopted by the American Medical Association in 1934.² A few special boards have been established in

¹Ciocco, Burnet, and Altman, op. cit., p. 317.

²American Medical Association. Council on Medical Education and Hospital Service. Hospital service in The United States. J. Amer. Med'l. Assoc. 116:1069. 1941.

various specialized branches of medicine for the purpose of testing the candidates' ability. However, the boards have no legal status. Taking the specialist examination is purely voluntary.

The general standards for specialists include graduation from an approved medical school, internship of not less than one year in a hospital acceptable to the Council of the American Medical Association, and a period of specialized training of at least 3 years in a selected field. In 1941 sixteen specialty boards had been organized in accordance with these standards. They included the following fields: Anaesthesiology, Dermatology and Syphilology*, Internal Medicine, Neurological Surgery, Obstetrics and Gynecology*, Ophthalmology*, Orthopedic Surgery, Otolaryngology*, Pathology, Pediatrics, Plastic Surgery, Proctology, Psychiatry and Neurology, Radiology, Surgery, and Urology. For the starred fields, examining and certifying boards already had been established before 1931 but there was no national and uniform regulation governing all fields of medical practice in order that properly specialized physicians might readily be differentiated from self-appointed specialists.¹

The American Medical Directory, which includes all physicians, lists the physicians according to their own classification. There was no universal national standard of classification. The need for such standards is illustrated by a survey in the Michigan State Medical Society in 1933, in which the public relations committee of each county society classified the society's members indicated that many who had classified themselves

¹ Ibid., p. 1069.

as "partial specialists" in the American Medical Directory were considered by their colleagues as general practitioners.¹

The first official directory of specialists certified by their respective specialty boards was published in 1940, by the Advisory Board for Medical Specialties.²

Status and Trend in Supply of Physicians

Sources of data on the supply of physicians

The primary sources of information concerning the supply of medical physicians in the United States are (1) the American Medical Directory of the American Medical Association, (2) the Directory of Medical Specialists certified by Advisory Board of Specialists, first published in 1939, and (3) the Population Census of the Bureau of the Census of the United States Department of Commerce. Other reports are for the most part based on data from these sources. The Bureau of Medical Economics of the American Medical Association has, for example, made some studies of the distribution of physicians in the nation and its trend. The United States Public Health Service also has made similar studies. Several agricultural experiment stations have published studies of the supply of physicians with special reference to rural areas in their respective states. These are all based on the American Medical Directory.

¹Michigan State Medical Society. Committee on Survey of Medical Services and Health Agencies. Report. 1933. p. 57-64. (Original not seen. Cited in American Medical Association. Bureau of Medical Economics, Distribution of Physicians. Chicago, The Association. 1936. p. 37-38.

²Advisory Board for Medical Specialties. Directory of medical specialists certified by American boards, 1939. New York, Columbia Univ. Press. 1940. p. viii.

The American Medical Directory does not give totals for various areas, although such totals can be computed from the data. The United States Census of Population and Census of the Labor Force provide data only at ten year intervals. All types of physicians are put into one total so that it is impossible to determine the distribution of general physicians. Then too, the distribution by counties or by size of locality is not published.

A comparison of the two sources reported by the United States Public Health Service indicates that the Directory totals for active physicians at the older age levels in 1940 are greater than the total of gainfully employed physicians reported in the 1940 United States Census, whereas the number of younger physicians is lower. This fact is interpreted by the United States Public Health Service as indicating that many older physicians fail to inform the Directory of their retirement while some of the younger physicians listed by the Census as gainfully employed may not have met the requirements for a Directory listing in 1940.¹

Difference in ratios of population per physician among the states

There is considerable variation in ratios of population per physician among the states, both for general practitioners and for specialists.

Total supply of physicians. In general, the Northeastern States have the largest supply of physicians in proportion to the population and the Southern States the smallest. In 1938, for example, there were approximately

¹Pennell, op. cit., p. 287.

613 persons per physician in the Northeastern area, 690 in the Western, 769 in the Central States, and 1064 in the Southern.¹

In an array of states arranged from low to high according to the number of persons per physician in 1938 the range was from 518 in New York State to 1,429 in Mississippi. The ratio for the United States as a whole was 764.² The median was 870. Iowa stood in nineteenth place, with 833 persons per physician. That is, 18 states had in proportion more physicians in relation to the population than did Iowa.

The ratio for Iowa in 1940 according to Mengelberg and Anderson was 863.³ According to Cioocco the ratio for the United States in 1940 was 750, ranging from 450 in New York to 1,500 in Mississippi.⁴

Supply of general physicians and of specialists. In 1931, 93.49 per cent of the physicians listed in the American Medical Directory were classified as being in general practice, though some gave special attention to one type of service. The other 16.51 per cent were classified as specialists.⁵ The Committee on the Costs of Medical Care estimated that

¹Calculated by author from data in Mountain, Joseph W., Pennell, Elliott H., and Nicoloy, Virginia. Location and movement of physicians, 1923 and 1938; general observation. U.S. Public Health Reports 57:1364. 1942.

²Ibid.

³Mengelberg, Kaethe, and Anderson, C. Arnold. Distribution of physicians in Iowa. How it changed during the last 20 years. Unpublished manuscript. Ames, Iowa. Iowa State College. Dept. of Econ. and Sociol. 1942. p. 4.

⁴Cioocco, Burnet, and Altman, op. cit., p.314.

⁵Based on data, Ibid., p. 19.

in 1928-1930, 26.3 per cent were specialists. Approximately seven per cent were eye, ear, nose and throat specialists. Estimates of the proportion of total specialists in medical profession vary from 24.4 to 39.8 per cent.¹

In 1935 the Bureau of Medical Economics of the American Medical Association published a study on the supply of physicians both in general and special practice in the United States in 1931. An array of states according to the number of persons per general physician, from low to high, shows Iowa in tenth place among the states with 943 persons per general physician. Colorado with 722 persons per general physician, is at the top, with New York second with 761. North Carolina is last, with 1,680 persons per general physician (See Table 37).

In an array of states according to persons per physician classified as specialist Iowa was twenty-fourth in the list with 6,193, Colorado with 3,038, and New York with 3,180, were again at the top. Idaho, with 22,252 persons per specialist, and Mississippi with 15,580 were at the bottom. The range of persons per physician of either type was from 583 in Colorado to 1,400 in South Carolina. Iowa was in fourteenth place.²

In Iowa in 1940, according to Mengelberg, 64 per cent of the physicians were general practitioners, 20 per cent had a general practice with a specialty, and 16 per cent were full time specialists.³

The specialists included in the above studies are self-styled. Not all of them are certified by their respective specialty boards. There

¹Leven, Maurice. The incomes of physicians. (Publication of the Committee on Costs of Medical Care; no. 24). Chicago, The Univ. of Chicago Press. 1932. p. 51.

²American Medical Association, Distribution of Physicians, p. 25-30.

³Mengelberg, Kaethe. The farmer's physician. Iowa Farm Economist 8, no. 12:11. 1942.

Table 37. Number of persons per physician and place
in array of states for selected states:
1923, 1931, 1934, 1938

Place in array ¹	State	Number of persons per physician				
		1923 ²	1931 ³	1934 ⁴	1938 ²	1940
1.	:Colorado	: 515	: 583			
	:New York			: 578	: 518	: 490 ⁵
2.	:California	: 556				
	:New York		: 614			
	:Colorado			: 599	: 575	
	:Massachusetts				: 575	
11.	:Iowa	: 694				
14.	:Iowa		: 819			
16.	:Iowa			: 833		
19.	:Iowa				: 813	
						: 863 ⁶
24.	:Texas	: 833				
	:Delaware		: 903			
	:Florida			: 999		
	:Arizona			: 962		
24.5	:Florida				: 869.5	
	:Arizona				: 869.5	
25.	:Connecticut	: 847				
	:Kansas		: 907	: 906		
47.	:South Carolina	: 1250			: 1389	
	:North Carolina		: 1372	: 1420		
48.	:North Dakota	: 1266				
	:South Carolina		: 1400	: 1428		
	:Mississippi				: 1429	: 1500 ⁶
	:United States	: 764 ⁷	: 794 ⁷	: 785 ⁷	: 764	: 750 ⁵

¹Of states arranged in order from smallest to largest number of persons per physician.

²Source: Calculated from Mountin, Joseph W., Pennell, Elliott H., and Nicolay, Virginia. Location and movement of physicians, 1923 and 1938: general observations. U.S. Public Health Reports 37:1374. 1942.

(Footnotes to Table 37 continued)

³Source: Calculated from American Medical Association. Bureau of Medical Economics. Distribution of physicians in the United States. Chicago, the Association. Revised 1936. p. 7, 25-30.

⁴Source: Calculated from American Medical Association. Bureau of Medical Economics. Factual data on medical economics. Chicago, the Association. Revised 1940. p. 40.

⁵Source: Giocco, Antonio, Davis, Burnet W., and Altman, Isador. Measures of medical resources and requirements. Medical Care 3:315. 1943.

⁶Source: Mengelberg, Kaethe and Anderson, C. Arnold. Distribution of physicians in Iowa: how it changed during the last 20 years. Unpublished manuscript. Ames, Iowa, Iowa State College, Dept. of Econ. and Sociol. 1942. p. 4.

⁷Source: American Medical Association. Bureau of Medical Economics. Factual data on medical economics. Revised. Chicago, the Association. 1940. p. 7.

were in 1939 only 168 physicians in Iowa who had been certified by their boards. This represents only 6.1¹ per cent of the total physicians in the state at that time. They ranged in number from one specialist in anaesthesiology to 45 in otolaryngology, as indicated in Table 41.

No standards exist at present for calculating the adequacy of this supply in Iowa. It is likely that in several specialties more physicians are needed. Those who are certified are fairly well distributed throughout the state. It is doubtless true that many physicians who specialize in various fields but who have not fulfilled the requirements for certification have had good training and experience and are skilled. It must be remembered that this certification is new. It will take some time before it has taken full effect.

Trends in the ratios of population per physician in the United States

Fairly accurate statistics of physicians in the United States have been available since 1886.² Data published by the Bureau of Medical Economics of the American Medical Association indicates that although the number of physicians increased from 1886 to 1934 it increased at a slower rate than did the population. Between 1886 and 1934 the number of physicians increased 84.3 per cent, whereas the population increased 118.2 per cent. The Bureau states "If there is any secular trend, it would seem to indicate that the number of physicians in relation to the population, when the term of forty-eight years (from 1886 to 1934) is considered, is decreasing".³

¹As calculated by the author from data in Advisory Board for Medical Specialists, op. cit.

²In 1886 the Polk Directory was established. In 1909 it was replaced by the American Medical Directory of the American Medical Association.

³American Medical Association, Bureau of Medical Economics, Factual data in medical economics, p. 7.

A study by the United States Public Health Service on the location and movement of physicians, 1923 and 1938, indicates that although the number of physicians increased 15.9 per cent in the 15-year period the population increased in about the same proportion, so that population-physician ratio remained about the same.¹ The study showed that there were approximately 764 persons per physician in the United States both in 1923 and 1938.² There had been apparently some increase in the ratio in 1931 and 1934, according to data published by the Bureau of Medical Economics but a decrease later (See Table 37).

The Bureau of Medical Economics points out that there have been cycles of increase and decrease in the ratio of population per physician in the United States with peaks in 1896, 1912, 1929 and low points in 1890 and 1906 and an apparent decrease from 1929 to 1934.³ These periodic changes in population per physician appear in the statistics for individual state and geographic areas as well as for the United States as a whole. There are some similarity and uniformity in the cycles in the various states. For Iowa there were peaks in the ratio in 1890, 1909, and again in 1931, with respectively 568, 616, and 791 persons per physician.⁴

The stability of general ratio of population per physician for the United States as a whole obscures the changes which have occurred in individual states. In 12 states the ratio increased from 1922 to 1935. In 16 states the ratios changed very little. Iowa was among the 21 states in which the

¹Mountin, Joseph W., Pennell, Elliott H., and Nicolay, Virginia. Location and movement of physicians, 1923 and 1938: turnover as a factor affecting state totals. U.S. Public Health Reports 57:1753. 1942.

²..... general observations, op. cit., p. 1366.

³American Medical Association, Bureau of Medical Economics, Factual data in medical economics, p. 7.

⁴Ibid., p. 12.

total number of physicians decreased in the period from 1923 to 1930, according to the investigation by the United States Public Health Service. The proportion of physicians in the population decreased as well. The number of persons per physician increased from 694 in 1923 to 813 in 1938. At the same time Iowa dropped from eleventh place in an array of states arranged from high to low in this ratio to nineteenth place.¹ (See Table 37).

It must be remembered in evaluating the change in population-physician ratios that number of physicians alone does not indicate the availability of medical service. In part the services of other personnel such as nurses and technicians and the use of specialized equipment have replaced the services of physicians, so that the ratio of services to population no doubt has increased greatly. This ratio is, however, not directly obtainable.

With the growth of knowledge in the field of health have come specialization and division of labor. There has been an apparent trend toward a proportionate increase in the number of specialists. Data are inadequate to measure this trend due somewhat to the fact that fields of specialty have changed and due also to the fact that there have been no definite criteria for a specialist in any given field of service, and as a consequence, specialists have been self-styled. One indication of the significance of the trend toward specialization is the effort of the American Medical Association to establish standards and means of regulation by certification of specialists.

In Iowa this trend is apparent. The data published by the Bureau of

¹Calculated from Mountin, Pennell, and Nicolay. Location and movement of physicians: general observations, op. cit., p. 1366.

Medical Economics showed 13.2 per cent of the physicians in 1931 classified as specialists¹ whereas according to Mengelberg, 16.0 per cent were full-time specialists in 1940. The American Medical Directory was the source of information in both cases.

Differences in population-physician ratios by type of locality

It is difficult to determine the supply of physicians serving rural areas. In the first place, it is difficult to estimate the number of people residing outside of a town or city who obtain medical and other health services there. Rural people may, for example, go to urban physicians instead of to physicians in small nearby towns. In general, there are trade areas attracting people for all types of needs. If it were possible to determine the borderline of trade areas it might be possible to determine more easily the population-physician ratio.

Classification of areas. In place of distribution of physicians by trade areas two other classifications may be used: (1) population-physician ratios by counties, and (2) population-physician ratios for localities of various sizes. It must be remembered that these groupings distort the picture to some extent. Both neglect the factor of flow of services between areas. Distribution by size of locality, in addition, does not indicate areas in the state which may have less than or more than an adequate supply. It shows averages alone, which is satisfactory with respect to general

¹American Medical Association, Bureau of Medical Economics, Factual data in medical economics, p. 19.

²Mengelberg, op. cit., p. 11.

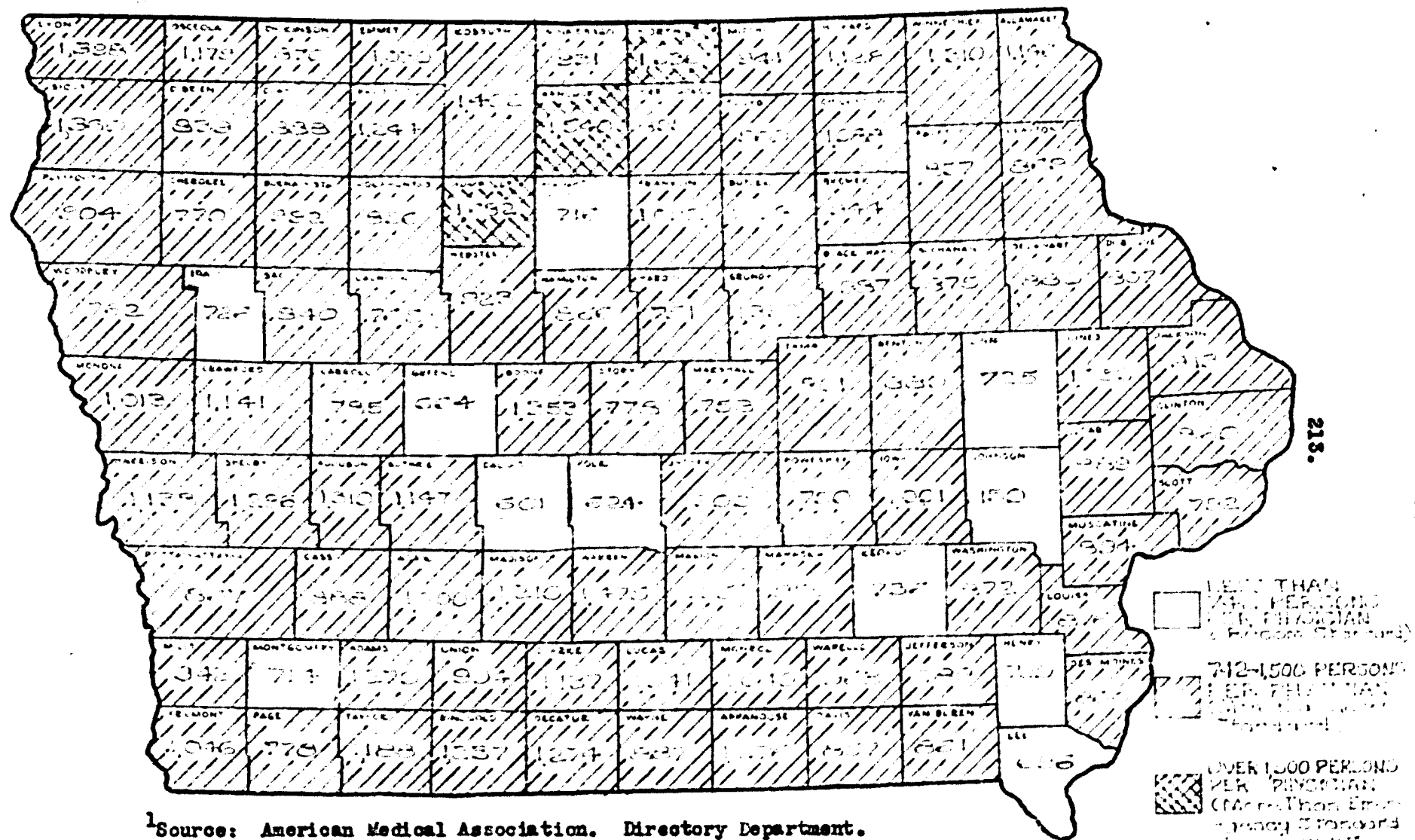
practitioners but not for specialists, who serve much larger areas.

Distribution of Iowa physicians by counties. Little attention is given in this thesis to distribution of physicians by counties. Such a classification ignores the availability of physicians in adjacent counties. It is, however, of interest to note the range of supply of physicians among the counties of Iowa. It is somewhat significant that counties with relatively few physicians are not always adjacent to those with a greater supply of physicians.

Among Iowa counties the range of persons per physician in 1939 as shown in Figure 16, was from 150 in Johnson County in which the University Hospital is located, to 1,682 in Humboldt County. Only 10 of the 99 counties in Iowa had as many as one physician per 742 persons (See Table 38), as recommended by the Committee on Costs of Medical Care. In 39 counties there was less than one physician per 1,000 population. Three had less than one per 1,500 population. These counties were not located next to counties having the largest supply of physicians. That is, indications are that the entire area rather than one county had fewer physicians. In general, there appeared to be less than an adequate supply of physicians in the northern tier of counties, particularly in the north central, in the western central counties, and some southern counties. The central and eastern part of Iowa had relatively the best supply of physicians in Iowa.

Why do these areas have a lower supply? One reason which already has been pointed out is low density of population to support a physician. Iowa counties having the greatest number of physicians in general are as

Figure 15. Population per physician, by counties, Iowa, 1938¹



¹Source: American Medical Association. Directory Department.
Number of physicians in the United States, by county, July 1, 1938.
Chicago, The Association. 1938.

Table 38. Number and percentage of counties in Iowa having standard population-physician ratios, 1938

Classification	Standard	
	Committee on Costs of Medical Care	Wartime Emergency War Manpower Commission
Recommended standard	742 ¹	1,500 ²
Number of counties ³		
Having standard	10	96
Not having standard	89	3
Percentage of counties ⁴		
Having standard	10.1	96.8
Not having standard	89.9	3.2

¹ Lee, Roger I., and Jones, Lewis W. The fundamentals of good medical care. (Publication of the Committee on Costs of Medical Care; no. 22). Chicago, the Univ. of Chicago Press. 1933. p. 13.

² U.S. Congress. Senate Committee on Education and Labor. Investigation of manpower resources. Hearings Seventy-seventh Congress, second session, in Senate Resolution 291. U.S. Govt. Print. Off. 1942. p. 662.

³ American Medical Association. Distribution of physicians in the United States, by counties. Chicago, the Association. 1939. p. 28-31.

⁴ Calculated by author from above data.

might be expected those with the largest cities or near to large cities. Another factor is income, as pointed out in Part II. Yet some of the areas with inadequate supply of physicians are at a high income level.

Distribution of physicians by size of locality. It is commonly recognized that there are in the United States fewer physicians in proportion to the population in rural areas than in urban. The Bureau of Medical Economics of the American Medical Association reports that for the nation as a whole in 1931 the number of persons per physician decreased gradually with increase in size of community, from 1,345 in places under 5,000 in population to 526 in places of 100,000 and over.¹ This pattern was repeated in 22 states and with slight variations in most of the others. In Iowa and five other states² the ratio decreased up to places of 10,000 to 25,000 in population and increased thereafter. In a few states, particularly in New England, there were fewer persons per physician in places under 5,000 than in places from 5,000 to 10,000. This was not true of most states. (See Table 39).

According to a study by Mengelberg and Anderson in 1942 places under 2,500 population in Iowa have 51.4 per cent of the population within and surrounding their limits, but only 32.9 per cent of the supply of physicians. Places under 1,000 in population, including persons in surrounding areas as well as within the community, are particularly below the average for the state with respect to resident physicians, which was one physician per 863

¹Alabama, Arkansas, Indiana, Minnesota, and Washington.

²American Medical Association, Bureau of Medical Economics, Factual data in medical economics, p. 25-30.

Table 39. Number of physicians in localities of various sizes, Iowa, West North Central States, and United States, 1931

Size of locality and type of physicians	Population per physician		
	Iowa ¹ population per physician	West North Central States ² Population per physician	United States ³ Population per physician
Physicians (all)			
Less than 5,000	1,054	1,253	1,345
5,000 to 9,999	607	673	951
10,000 to 24,999	427	495	818
25,000 to 99,999	676	604	723
100,000 and over	548 ⁴	428	526
Total	819	814	817
Physicians with general practice but special attention to a specialty			
Less than 5,000	1,091	1,289	1,390
5,000 to 9,999	718	792	1,070
10,000 to 24,999	545	651	974
25,000 to 99,999	906	820	928
100,000 and over	758	652	686
Total	943	965	976
Specialists			
Less than 5,000	31,175	45,149	41,987
5,000 to 9,999	3,923	4,499	9,530
10,000 to 24,999	1,975	2,073	5,104
25,000 to 99,999	2,670	2,293	3,283
100,000 and over	1,996	1,936	2,261
Total	6,193	5,214	4,945

¹American Medical Association. Bureau of Medical Economics. Distribution of physicians in the United States. Revised. Chicago. The Association. 1938. p. 28.

²Ibid., p. 21.

³Ibid., p. 26.

⁴Des Moines is the only place of this size in Iowa.

persons. The potential patient load per physician in places under 1,000, barring mobility of patients and flow to larger places, was nearly three times that in Des Moines, 1,556 in contrast to 544. The potential patient load of 544 in places of 10,000 to 49,999 was about the same as that in Des Moines. Mengelberg and Anderson point out that the population per physician load in places of 10,000 to 49,999 is due mainly to the relatively large number of physicians living in Iowa City as members of the medical school. (See Figure 16 and Table 40).¹

Mengelberg and Anderson found that in 1940 there were 24 out of the 215 places in Iowa with population of 500 to 1,000 which were without a physician. Ten of these had been without a physician since 1920. There were no physicians in only two places in which the population was 1,000 to 2,500. Nearly 75 per cent² of places of less than 500 population were without a physician. In many of the latter it is likely that a physician could not make a living and that one physician for several places would be adequate.³

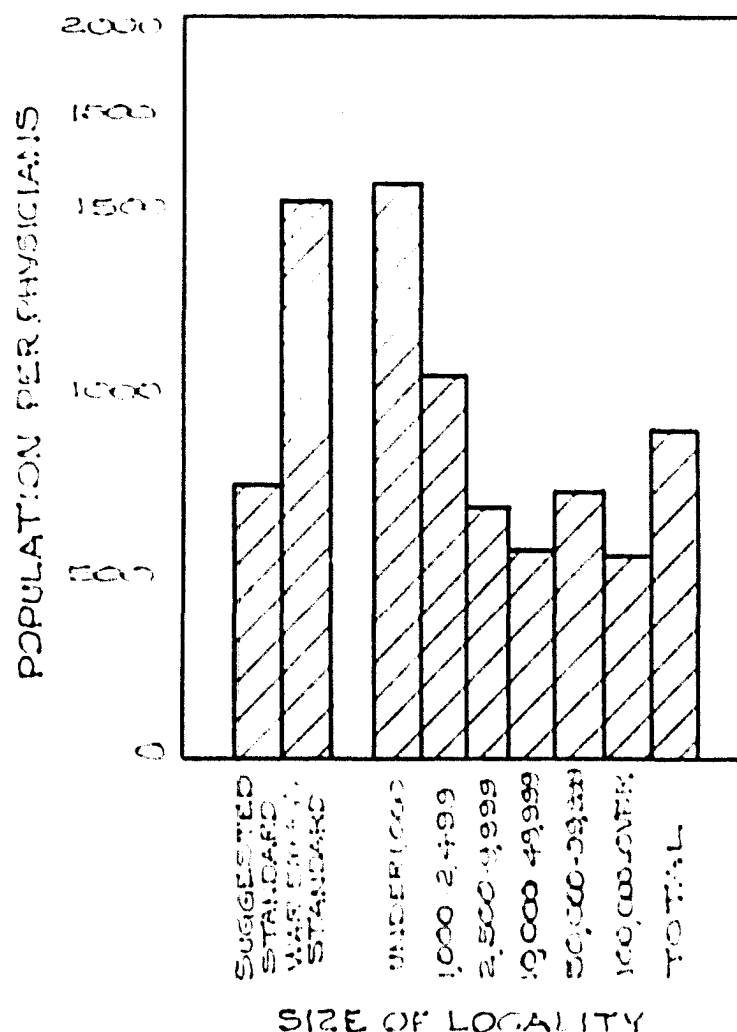
Studies of the supply of physicians in other states have shown a similar pattern of decrease in the number of persons per physician with

¹Mengelberg, Kaethe and Anderson, C. Arnold. Distribution of physicians in Iowa: how it changed during the past 20 years. Unpublished manuscript. Ames, Iowa. Iowa State College, Dept. of Econ. and Sociol. p. 3. Also Mengelberg, Kaethe, Doctors in demand. Iowa Farm Economist 8, no. 10:12.

²613 out of 831.

³Mengelberg, Kaethe and Anderson, C. Arnold. Rural communities in Iowa without physicians. Unpublished manuscript. Ames, Iowa. Iowa State College, Dept. of Econ. and Sociol. 1942. p. 2, 3.

Figure 16. Population per physician, by size of locality, Iowa, 1940¹



¹Source: Mengelberg, Kaethe and Anderson, C. Arnold. Distribution of physicians in Iowa: how it changed during the past 20 years. Unpublished manuscript. Ames, Iowa, Iowa State College, Dept. of Econ. and Sociol. p. 1, 3.

In these estimations the farm population of Iowa is assumed to be distributed evenly throughout the state. The average farm population per town or city as obtained by dividing the total population of Iowa outside of towns and cities by the number of towns and cities. It was found to be 1,694. This average then was added to the population of each community as listed in the 1940 census. (Described in Mengelberg and Anderson, Changes in distribution of physicians with respect to population per physician in different sizes of communities. Unpublished manuscript. Ames, Iowa. Iowa State College, Dept. of Econ. and Sociol. 1942. p. 11.)

Table 40. Distribution of population and physicians by size of locality,
Iowa, 1940¹

Size of community	Population		Physicians		Population per physician	Physicians per 1,000 population
	Number	Per cent	Number	Per cent		
Less than 1,000	898,027	35.4	577	18.5	1,556	.643
1,000 to 2,499	405,170	16.0	394	13.4	1,028	.973
2,500 to 9,999	428,130	16.8	629	21.4	682	1.466
10,000 to 49,999	376,361	14.7	676	23.0	557	1.795
50,000 to 99,999	269,044	10.6	370	12.6	727	1.376
Des Moines (over 100,000)	161,514	6.4	297	10.1	544	1.821
Total	2,538,246	100.0	2,942	100.0	863	1.159

¹Source: Kengelberg, Maethe and Anderson, C. Arnold. Distribution of physicians in Iowa: how it changed during the past 20 years. Unpublished manuscript. Ames, Iowa. Iowa State College, Dept. of Econ. and Sociol. p. 1, 3.

In these estimations the farm population of Iowa is assumed to be distributed evenly throughout the state. The average farm population per town or city as obtained by dividing the total population of Iowa outside of towns and cities by the number of towns and cities. It was found to be 1,694. This average then was added to the population of each community as listed in the 1940 census. (Described in Kengelberg and Anderson, Changes in distribution of physicians with respect to population per physician in different sizes of communities. Unpublished manuscript. Ames, Iowa. Iowa State College, Dept. of Econ. and Sociol. 1942. p. 11.)

²Includes Iowa City.

increase in size of locality. For example, Nelson's study in Minnesota indicated that in 1930 there were 1,444 persons per physician in rural counties in Minnesota and 1,259 in urban, contrasted with 544 in counties with large cities. The average for the state of Minnesota was 834 persons per physician.¹

In the California Medical Economics Survey made in 1934 there was also indicated an inverse relationship between the number of persons per physician and the proportion of rural population in the communities. It was found that the 36 per cent of the population of the state who resided outside towns and cities of 10,000 or over were directly served by only 19 per cent of the doctors of medicine of the state.² There was indicated by this study an inverse relationship between size of community and relative number of physicians.

Distribution of specialists in Iowa. There are relatively fewer specialists in rural communities in Iowa than in urban. In 1940, according to the study by Mengelberg and Anderson, 65 per cent of the physicians in Iowa were general practitioners. Specialists comprised 15 per cent of the total. The other 20 per cent combined a general practice with a specialty. In communities under 1,000 in population 84 per cent of the physicians were general practitioners, the others combining a general practice with a specialty. In places of 1,000 to 2,499, 79 per cent of the physicians had

¹Nelson, Lowry. Distribution, age and mobility of Minnesota physicians, 1912-1936. Amer. Sociol. Rev. 7:795. 1942.

²Dodd and Penrose, op. cit., p. 26.

general practices and 19 per cent combined general practice with a specialty. Specialists practiced for the main part in cities. In no community under 1,000 were there any specialists and in communities of 1,000 to 2,499 population only two per cent of the doctors were specialists. In small cities of 2,500 to 9,999 population approximately an eighth of the doctors were specialists.

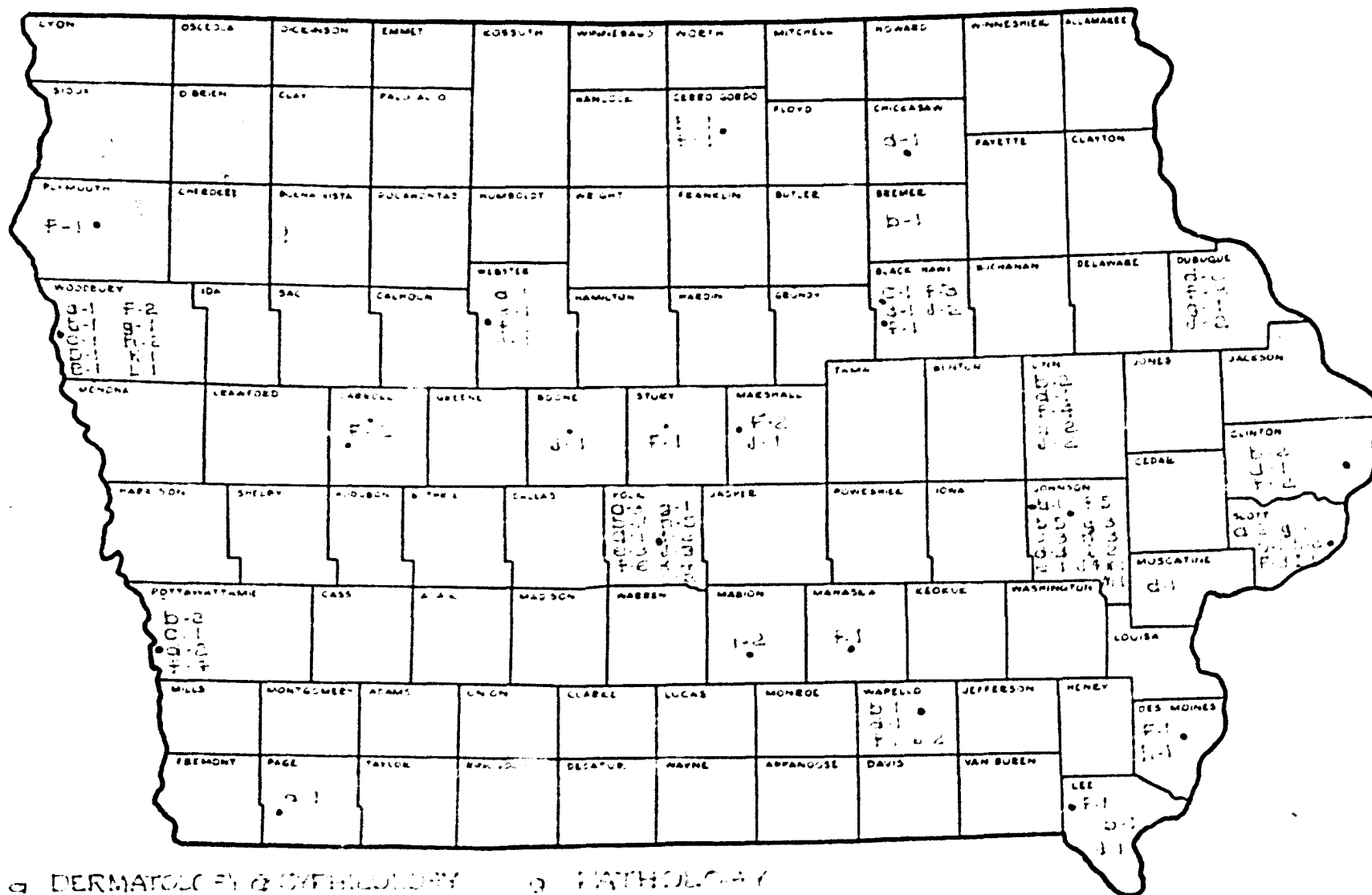
Nearly a quarter, 23 per cent, of physicians in cities of 10,000 to 24,999 specialized and approximately one-third, 31 per cent, of those in larger cities. In places over 10,000 in population less than half of the doctors were in general practice only. The rest were specialists or combined a general practice with a specialty.¹

The number of persons per specialist in 1931 reported by the Bureau of Medical Economics indicates that although there are relatively fewer specialists in rural than in urban areas nevertheless places of less than 5,000 population in Iowa do have relatively more specialists than is true for places of similar size in the United States as a whole or in the West North Central States. There were approximately 31,175 persons per specialist in Iowa in places under 5,000 in contrast to 41,975 in the United States and 45,148 in the West North Central States² (See Table 39).

Iowa specialists listed in "The Directory of Medical Specialists Certified by American Boards, 1939," totaled 168. That they were fairly well distributed throughout the state is indicated by Figure 17 and Table 41.

¹Mengelberg, The farmer's physician, p. 11.

Figure 17. Distribution of specialists certified by American Boards of Specialties, Iowa, 1939¹



a DERMATOLOGY & SYPHILIS
b INTERNAL MEDICINE
c OBSTETRICS & GYNECOLOGY
d OPHTHALMOLOGY
e ORTHOPEDIC SURGERY
f OTOLARYNGOLOGY

g PATHOLOGY
h PEDIATRICS
i PNEUMONIA & TUBERCULOSIS
j RADIOLOGY
k SURGERY
l VENEREOLOGY
m ANESTHESIOLOGY

¹Source: Advisory Board for Medical Specialties. Directory of medical specialists certified by American boards, 1939. New York, Columbia Univ. Press. 1940. p. 25.

Table 41. Iowa specialists certified by American

	Anas	Boone	Burlington	Carroll	Cedar Falls	Cedar Rapids	Clinton	Council Bluffs	Davenport	Des Moines	Dubuque	Ft. Dodge	Ft. Madison	Iowa City	Keokuk	Knorrville
Anesthesiology ¹														1		
Dermatology and ophthology ²										3						
Internal medicine ³						2			2	2				5	1	
Obstetrics and gynecology ⁴										1				3		
Ophthalmology ⁵						1	1	2		1	2	1		4	1	
Orthopedic surgery ⁶										1	3	1		1		
Otolaryngology ⁷	1		1	2	1	4	2	4	3	6	3	1	1	5		
Pathology ⁸									1	1	1			3		
Pediatrics ⁹			1			2			2	5				3		
Psychiatry and neurology ¹⁰								1	1	2		1		2		2
Radiology ¹¹		1				2				3	2			4		
Surgery ¹²								1		4				1		
Urology ¹³										2						
Total	1	1	2	2	1	11	3	11	10	41	6	4	1	32	2	2

¹Source: Advisory Board for Medical Specialties. Paul Titus, Editor. Directory Boards, 1939. Columbia U. Press. N.Y. 1940. p. 25.

²Ibid., p. 49-50.

³Ibid., p. 133-135.

⁴Ibid., p. 283.

⁵Ibid., p. 374-376.

⁶Ibid., p. 462.

⁷Ibid., p. 580-583.

⁸Ibid., p. 756.

⁹Ibid., p. 834-835.

¹⁰Ibid., p. 842.

¹¹Ibid.

¹²Ibid.

¹³Ibid.

[illegible]

Dr. Titus, Editor. Directory of Medical Specialists certified by American

¹¹Ibid., p. 1024-1025.
¹²Ibid., p. 1129.
¹³Ibid., p. 1227-1228.

Summary. The total supply of physicians seems to be fairly adequate. The average of one physician per 863 persons is, however, lower than the standard of 742 recommended by the Committee on Costs of Medical Care.

It must be remembered, however, that these physicians are not evenly distributed throughout the state. In places over 2,500 in population the supply meets the standard of the Committee on Costs of Medical Care; in places of smaller size it does not. For places under 1,000 in population not even the emergency standards of the War Manpower Commission is reached. Data are not available on how readily accessible to persons in these areas are physicians in larger places.

Trends in population-physician ratio with special reference to rural areas

General change in United States. For the United States as a whole the general trend toward relatively fewer physicians in proportion to the population is more pronounced in rural areas than in urban. Data concerning population per physician reported for 1906, 1923, and 1931, show a larger number of persons per physician in all types of communities and, with slight irregularity, in general an inverse relationship between size of community and number of persons per physician.¹ Data for 1938 reported by the United States Public Health Service showed that counties with cities of 50,000 or more showed a decrease in this ratio, from 629 in 1923 to 575 in 1938, whereas all other counties showed an increase, from 1,087 in 1923,

¹American Medical Association, Bureau of Medical Economics, Factual data on medical economics, p. 25-30.

to 1,449 in 1938, in counties with no incorporated place of 2,500 inhabitants or more, and from 879 to 1,000 in counties with places from 2,500 to 50,000.¹

Change in number of physicians relative to population in Iowa. Mengelberg and Anderson found that in Iowa during the 20-year period from 1921 through 1940 the relative number of persons per physician increased in all types of communities except in those from 10,000 to 25,000, in which group was included Iowa City with its physicians who are members of the University Hospital staff. The per cent of change varied greatly in communities of various sizes, however, from 52 per cent increase in places less than 2,500 to 17 per cent in Des Moines and 12 per cent decrease in places of 10,000 to 25,000. The number of persons per physician in places from 25,000 to 100,000 increased approximately one-third; in places from 2,500 to 5,000 in population, nearly one-fourth (See Table 42).

Absolute change in Iowa. The absolute change in the supply of physicians was downward in all places except Des Moines, if Iowa City, the city in which is located the State University Hospital, which in some degree serves the people of the whole state, is excluded.² The largest decrease was in places of less than 1,000, in which there was a decrease of 43.3 per cent in the number of physicians from 1921 to 1940. In places of 1,000 to

¹Mountin, Joseph W., Pennell, Elliott H., and Nicolay, Virginia. Location and movement of physicians, 1923 and 1938: effect of local factors upon location. U.S. Public Health Service: 57. 1945, 1942. Also reprint no. 2434, p. 7.

²The University Hospital in Iowa City serves the state as a whole. Thus its inclusion in the supply of physicians for places of the size of the city in which it happens to be located gives an upward bias to the supply of physicians of places of that size.

Table 42. Change in population per physician, by size of locality, Iowa, 1921, 1931, 1940.¹

Size of community	Population per physician			
	1921 ²	1931	1940 ²	Per cent change 1921-1940 ²
Less than 1,000	1,023	1,362	1,556	52
1,000 - 2,499	676	940	1,028	52
2,500 - 4,999	572	677	697	22
5,000 - 9,999	501	612	664	33
10,000-24,999	416	419	411	-12
25,000-49,999	602	691	787	31
50,000-99,999	537	663	727	35
Over 100,000	463	542	544	17
Average	687	821	863	26

¹Source: Mengelberg, Kaethe and Anderson, C. Arnold. Changes in distribution of physicians with respect to population per physician in different sizes of communities. Unpublished manuscript. Ames, Iowa. Iowa State College, Dept. of Econ. and Sociol. 1942. Includes population surrounding as well as within various communities.

²See also Mengelberg, Kaethe. Doctors in demand. Iowa Farm Economist 8, no. 10:12.

2,500 the decrease was 23.2 per cent. In places of 2,500 to 10,000 there was a decrease of 5.56 per cent; in places of 10,000-50,000, an increase of 8.3 if Iowa City is included, but a decrease of 8.8 if Iowa City is excluded; and in places of 50,000 to 100,000 a decrease of 7.7 per cent. In Des Moines, on the other hand, the number of physicians increased 7.1 per cent in the 20 year period. At the same time the number of people within and surrounding all communities increased from 1.01 per cent in places of less than 1,000 to 20.9 per cent in Des Moines (See Table 43).

The percentage change in distribution of physicians. Although it is less significant than the ratio of population to physicians it is of interest to note the change in the distribution of physicians among various localities from 1921 to 1940. In 1921, 29.2 per cent of all physicians in Iowa were located in places of less than 1,000 population, whereas in 1940 only 19.5 per cent were located in these places. There was a slight decrease from 14.6 to 13.4 per cent in towns of 1,000 to 2,499, and a slight increase, from 10.0 to 11.7 per cent in towns from 2,500 to 5,000. The proportion of physicians in small cities and places of 25,000 to 50,000 remained fairly stable, rising from 9.0 to 9.7 per cent in the former and from 8.3 to 8.9 in the latter. There was an increase in places of 10,000-25,000, from 9.4 to 14.1 per cent; in places of 50,000 to 99,000, from 11.4 per cent to 12.6 per cent; and in Des Moines from 7.9 to 10.1 per cent (See Table 44).

Table 43. Relative change in non-farm population and number of physicians in various localities, Iowa, 1921 to 1940¹

Localities	:	Per cent change in	
		Population (non-farm):	Number of physicians
Less than 1,000	:	+ 1.01	-43.32
1,000 - 2,499	:	+ 7.40	-23.19
2,500 - 9,999	:	+14.95	- 5.56 ²
10,000-49,999	:	+16.89	+ 8.28
50,000-99,999	:	+20.03	- 7.73
Des Moines (over 100,000):	:	+20.86	+ 7.07
Average	:	13.01	-15.37

¹Source: Mengelberg, Kaethe and Anderson, C. Arnold. Changes in distribution of physicians during the last 20 years. Unpublished manuscript. Ames, Iowa. Iowa State College, Dept. of Econ. and Sociol. 1942, p. 5.

²With Iowa City excluded the change was - 8.83 per cent.

Table 41. Percentage of physicians in localities of various sizes, Iowa, 1921, 1931, 1940¹

Size of community	Per cent of physicians		
	1921	1931	1940
Less than 1,000	29.2	23.3	19.5
1,000 to 2,499	14.8	13.3	13.4
2,500 to 4,999	10.0	10.6	11.7
5,000 to 9,999	9.0	9.4	9.7
10,000 to 24,999	9.4	12.6	14.1
25,000 to 49,999	8.3	9.5	8.9
50,000 to 99,999	11.4	12.5	12.6
Des Moines (100,000 and over)	7.9	8.8	10.1
Total	100.0	100.0	100.0

¹Mengelberg, Kaethe and Anderson, C. Arnold. Changes in distribution of physicians with respect to population per physician in different sizes of community, Unpublished manuscript. Ames, Iowa. Iowa State College, Dept. of Econ. and Sociol. 1942. p. 6.

Nelson reports a similar trend in the supply of physicians in Minnesota, from 1912 to 1936, with physicians in rural areas constituting a steadily declining proportion of the whole.¹

Other Characteristics of Supply of Physicians in Rural Areas

It has already been pointed out in some detail that the number of physicians alone does not measure the supply. It also has been pointed out that other factors than physical quantity enter into the determination

¹Nelson, Lowry, op. cit., p. 792-794.

of supply. Among these, of course, are training and skill of the practitioners; accessibility if physicians are not close at hand; and availability to the patient at a price he is able to pay. Important among the characteristics of the supply of physicians in rural communities are age and mobility. These two aspects will be considered in this chapter.

Relative age of physicians in rural areas

Various studies confirm the common impression that there is a tendency for young physicians to concentrate in cities and for physicians in rural communities to be older men. There is a trend toward a higher average age of physicians in all communities but this trend is more pronounced in rural areas.

The United States Public Health Service reported in 1943 that the proportion of physicians over 57 years of age in rural counties in the United States, those having no town over 2,500 in population, increased from 24.8 per cent in 1923 to 45.1 per cent in 1938, whereas in counties having cities of 50,000 population or more the proportion of physicians in this age group increased only from 16.9 per cent in 1923 to 22.6 per cent in 1940.¹

The California Medical Economics Survey in 1934 indicated that 37.8 per

¹Mountin, Joseph W., Pennell, Elliott H., and Nicolay, Virginia. Location and movement of physicians, 1923 and 1938: age distribution in relation to county characteristics. U.S. Public Health Reports 58:483. 1943.

cent of the doctors of medicine practicing in highly agricultural counties, those in which less than half of the population was non-farm, were at least 60 years of age as contrasted with 19.0 per cent in highly urbanized counties, those in which over 90 per cent of the inhabitants were non-farm. It was found also that although 26.7 per cent of the doctors of medicine practicing in the highly rural countries were less than 40 years old, 35.4 per cent of those in the highly urbanized counties and 34.4 per cent of all the doctors of medicine in the state were of that age.¹

In Ohio, McNamara found that in 1940, 30.2 per cent of the physicians in rural areas were over 65 years of age, whereas in urban areas only 15.2 per cent of the physicians were of this age.²

Nelson reports that in Minnesota from 1912 to 1936 the physicians in rural areas constituted a steadily declining proportion of the whole. The number of persons per physician increased in rural areas from 1,443 in 1912 to 1,814 in 1931. In urban areas it decreased from 632 to 534 in 1931.³

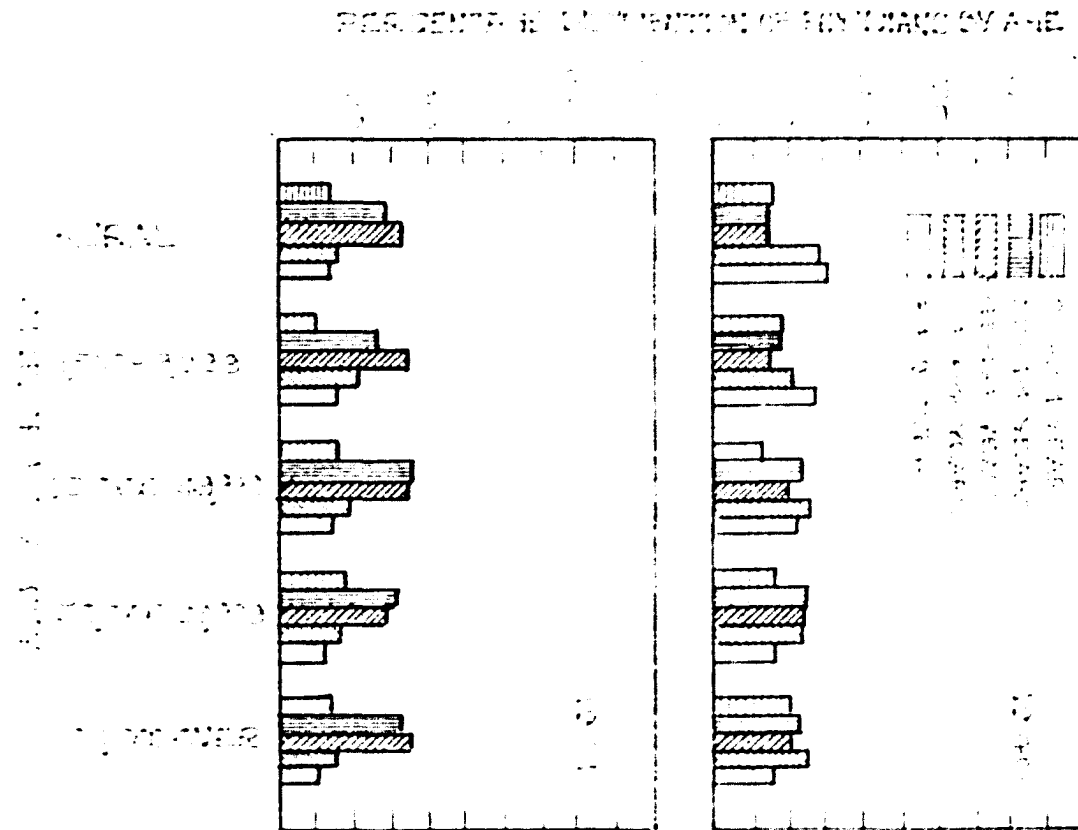
The trend toward a higher average age for physicians and toward concentration of young physicians in urban areas and older physicians in rural areas occurs in Iowa as well as in other states (See Figure 18 and Table 45). There are in proportion to the population more older physicians in rural

¹Dodd and Penrose, op. cit., p. 28.

²McNamara, Robert L. Changes in the characteristics and number of practicing physicians in rural Ohio, 1923-1942. *Rural Sociol.* 9:14. 1944.

³Nelson, Lowry, op. cit., p. 793-794.

Figure 18. Age distribution of physicians by size of locality, Iowa, 1921, 1931¹



¹Source: Mengelberg, Kaethe, Anderson, C. Arnold, and Ryan, Bryce.
The farmer's doctor is getting old. Unpublished manuscript. Ames, Iowa.
Iowa State College, Dept. of Econ. and Sociol. 1942. p. 2.

Table 45. Age distribution of physicians by size of locality, Iowa, 1921, 1940¹

Size of locality and year	Percentage of physicians of age					
	All	25-34	35-44	45-54	55-64	65 & over
Less than 2,500						
1921	100	12	28	31	16	13
1940	100	14	13	13	29	31
2,500-9,999						
1921	100	10	24	32	20	14
1940	100	18	18	16	21	27
10,000-49,999						
1921	100	13	24	32	18	13
1940	100	12	22	19	26	21
50,000-99,999						
1921	100	16	30	28	15	11
1940	100	16	23	23	22	16
100,000 and over						
1921	100	12	31	33	14	10
1940	100	20	20	20	24	16

¹Source: Mangelberg, Kaethe, Anderson, C. Arnold, and Ryan, Bryce.
The farmer's doctor is getting old. Unpublished manuscript.
Ames, Iowa. Iowa State College, Dept. of Econ. and Sociol. 1942. p. 2.

communities in the state as a whole. Mengelberg¹ found that in 1940 half of the physicians in Iowa were 55 years of age or older, whereas in 1921 only 30 per cent were 55 or above. However, in places of less than 2,500 in population, 60 per cent of the physicians were 55 years of age or more in contrast to 29 per cent in 1921. In Des Moines, on the other hand, 40 per cent of the physicians were in the age group of 55 years or more in 1940, against 24 per cent in 1921. In 1921 both in places under 2500 and in Des Moines, 12 per cent of the physicians were 35 years of age or under. In 1940 the percentage had increased to 20 per cent in Des Moines and to only 14 per cent in villages. At the same time the proportion of physicians of ages 35 to 54 had decreased in Des Moines from 64 to 42 per cent and in small places from 69 to 26 per cent.

In cities from 2,500 to 9,999 and from 10,000 to 49,999 in population the proportion of physicians over 54 years of age in 1940 was slightly less than the average of 50 per cent for the state, 48 per cent in the former and 47 per cent in the latter. In 1921 the percentages were 34 and 31 respectively, slightly over the 30 per cent average for the state. In cities of 50,000 to 99,999, however, only 38 per cent of the physicians were of this age group in 1940, 26 per cent in 1921.

Mobility of residence of physicians in rural areas

There is some evidence of a rapid rate of turnover among rural physicians. For example, McNamara reporting on an intensive study of the

¹Mengelberg, Kaethe. Doctors in two decades. Iowa Farm Economist 8, no. 10: 10. 1942.

migration of physicians in four rural counties of Ohio during the period from 1923 to 1942 found that of 89 physicians in the rural areas of these counties 23 were recent graduates of medical schools and 66 were more experienced practitioners. Of the 66, nearly half (31 per cent) were persons 50 years of age or older seeking new locations for private practices.¹ Maslow in a study of six Wisconsin counties found similar results.²

Nelson found that in Minnesota during the period from 1912 to 1936 instability of residence was highest in very small and very large centers, particularly the former. He also found that despite the general drift of physicians to cities, a large proportion of physicians moving from rural areas moved to other rural areas, whereas the converse was true for urban physicians. In intra-state moves, 54.2 per cent of those originating in places under 500 in population terminated in places under 2,500. Of all moves from places under 2,500, 48.1 per cent terminated in places under 2,500. Of those from places over 2,500, 37.5 per cent terminated in places under 2,500.³

Mengelberg and Anderson found that in Iowa from 1921 to 1940 there was a constant flow of physicians into and out of practice in the state, which was rather balanced in itself and amounted every second year to about

¹McNamara, op. cit., p. 11.

²Maslow, Harold. The characteristics and mobility of rural physicians: a study of six Wisconsin counties. *Rural Sociol.* 3:272. 1938.

³Nelson, op. cit., p. 800, 801.

10 per cent of the total number of physicians practicing in the state. This included physicians with newly issued licences and those retiring from practice as well as established physicians moving to or from other states.¹

From 1921 to 1940 the average number of moves within Iowa was 73 per year.² The percentage of moves, with the total average number of physicians residing in Iowa as the base, was 2.5.³ Including both inter-state and intra-state moves, approximately 7.5 per cent of all physicians practicing in Iowa change their place of residence annually.

Mengelberg and Anderson found that places with less than 1,000 inhabitants are losing medical service by mobility of physicians. Des Moines also is losing some.⁴ All other urban districts show a gain through mobility of physicians, except Iowa City, whose loss through moves of graduates from the University of Iowa has no reference to the question of stability of tenure of practice. Moving was most concentrated during the twenties and in smallest communities. Frequency of moves into rural places from 250 to 2,500 is high.⁵ Places from 2,500 to 25,000 in population also

¹Mengelberg, Kaethe and Anderson, C. Arnold. Turnover rate of physicians. Unpublished manuscript. Ames, Iowa, Iowa State College, Dept. of Econ. and Sociol. 1942. p.1.

²Mengelberg, Kaethe and Anderson, C. Arnold. Mobility within Iowa during the last 20 years. Unpublished manuscript. Ames, Iowa, Iowa State College, Dept. of Econ. and Sociol. 1942. p. 8. Moves of new graduates from Iowa City, which cannot be interpreted as indicating instability of service as can moves by established physicians, are excluded. The average is 85 moves per year.

³Ibid. This also includes moves of new graduates from Iowa City.

⁴This includes changes in the total supply of physicians due only to change of residence. It does not include changes due to retirement or to death.

⁵It may be that there are frequent moves by physicians among villages of approximately the same size. No data were given to substantiate this.

attract physicians who are changing residence. Places from 25,000 to 100,000 lost physicians by mobility from 1931 to 1936 but regained by mobility after 1936.¹

Some Factors Affecting Supply of Physicians

Before evaluating further the status of supply of physicians in rural areas of Iowa it is well to examine certain factors affecting the supply. First are examined those affecting the total supply of physicians. Attention then is turned to those affecting the supply of physicians in rural areas.

Some factors affecting the total supply of physicians

Before exploring factors affecting the supply of physicians in rural areas, it is well to examine those affecting the total supply.

Factors tending to increase supply of physicians. It is likely that prestige and potentially high incomes are important factors leading people to enter the medical profession. A third factor is the spirit of social service.

Much of the prestige carried by the profession is due to genuine admiration by the general public for services given by physicians and for the training and skill required. In addition, prestige is due to the public's respect for the high income which physicians are reputed to enjoy and which in many instances is higher than the general level of income in the community. However, a large part of the prestige in all probability is a hangover from the past. Many people still look upon the doctor as some sort of medicine

¹Mengelberg, and Anderson, Mobility within Iowa during the last 20 years, p. 6.

man or shaman with supernatural, mysterious abilities. Many still look upon him with the awe inspired by the priests of older times who were supposed to be able to cure the sick. He is the shaman of primitive society, the priest of ancient civilization, the craftsman and cleric of the middle ages, the scientist and social worker of more recent times.

The possibility of high income no doubt attracts many people into the medical profession.¹ Although the average net income of physicians indicated by various surveys might seem to indicate the truth of the popular assumption that physicians in general have very high incomes, the distribution of physicians' income in 1941, as reported to the Bureau of Domestic and Foreign Commerce, indicates that there is little tendency for

¹ Among nation-wide studies of physicians' incomes are the following:

- a. Leland, R.B. Income from medical practice. J. Amer. Med'l. Assoc. 96:1683-91. 1931. This survey conducted by the American Medical Association concerned physicians' incomes in 1928. Questionnaires, of which 6378 were returned, reached physicians through the Journal of the American Medical Association, The American Medical Association Bulletin, and by direct mail.
- b. Leven, Maurice. The incomes of physicians. (Publication of the Committee on Costs of Medical Care, no. 24). Chicago, the Univ. of Chicago Press. 1932. Three types of studies were made: (1) community surveys in 16 localities (p. 8-10); (2) nation-wide representative sample of 20,000 physicians, by whom 4,962 questionnaires were returned (p. 12-15); and (3) estimate based on the 1929 income tax returns of 69,000 physicians, which of course is not a representative sample (p. 19-21).
- c. Denison, Edward F. and Slater, Alvin. Incomes in selected professions. Survey of Current Business 23, no. 8:18-20. 1943. The series of studies reported here was made in 1933, 1935, 1937, and 1942 by the Bureau of Foreign and Domestic Commerce of the U.S. Department of Commerce. The questionnaire method was used. The questionnaires returned numbered 2,263 in 1933, 1,361 in 1935, 1,571 in 1937, and 1,900 in 1942.
- d. The incomes of physicians: a comparison of published studies. Medical care 4:221-227, 1944. The Medical Care magazine has made several studies of physicians' incomes by means of questionnaires.

individual incomes to concentrate around the average or median incomes. The average net income reported by general practitioners for that year was \$5,047 and the median net income reported was \$3,756. More than one-fourth of the physicians, however, reported incomes below \$2,000. Only 22.1 per cent reported net incomes of \$7,000 or more. Approximately one in eight reported earnings in excess of \$10,000.¹ Among physicians' earning salaries (full time) nearly one-half reported incomes from \$3,000 and \$5,000, in 1941. Only 7.3 per cent reported incomes below \$2,000 (See Table 46).

Several factors must be considered in regard to the income of physicians. For one thing, there is likely to be a great difference between gross and net incomes. There is a relatively high investment in equipment and supplies. The Bureau of Foreign and Domestic Commerce study indicated that net incomes of physicians in independent practice for the period 1936-1941 was 58.7 per cent of the gross income, the percentage varying slightly from year to year but remaining on the whole very stable.² A study of incomes of physicians by The American Medical Association indicated that percentage

(Footnote continued)

In 1929 there were 9,941 usable returns; in 1931, 4,884; in 1934, 4,223; in 1936, 4,569; in 1940, 7,707. Returns were grouped as to size of locality.

In addition, Kuznets and Friedman of the National Board of Economic Research made an independent analysis of three of the surveys of the Bureau of Domestic and Foreign Commerce.

¹Denison and Slater, op.cit., p. 17.

²Ibid., p. 19.

Table 46. Percentage of physicians receiving
various incomes, United States, 1929¹

Average net income	: General : practitioners	: Specialists
Less than \$1,999	35.8	10.8
\$2,000-\$4,999	38.6	19.6
\$5,000-\$9,999	21.5	37.0
\$10,000 and over	4.2	32.6
Total	100.0	100.0

¹Calculated by the author from data in Table 13A of
Leven, Maurice. Incomes of physicians: an economic and
statistical analysis. (Publication of the Committee on
Costs of Medical Care. no. 24). Chicago, The Univ. of
Chicago Press. 1932. p.117.

to be 65 per cent of these around \$30,000. It was proportionately more in high income brackets. For instance, net incomes were on the average 21 per cent of gross incomes around \$1,000, 59 per cent of those around \$5,000 and 66 per cent of those around \$30,000.¹

Warren estimated in 1938 that necessary expenses incident to the practice of medicine in rural areas in New York State amount to about 35 to 40 per cent of the gross. He estimated an average gross income of \$4,000 to \$6,000 for rural doctors. This would mean, according to his figures, a net income of around \$2,600 to \$3,700. No data were given to support his estimates.²

Potentially high incomes are particularly likely for specialists. For example, the data on incomes of physicians in 1929, published by the Committee on Costs of Medical Care, indicate that 32.6 per cent of the specialists surveyed earned net incomes over \$10,000 a year, whereas only 4.2 per cent of the general practitioners had net incomes as high as this. Also, only 10.8 per cent of the specialists had net incomes under \$2,000 per year, in contrast to 35.8 per cent of the practitioners. Net incomes between \$2,000 and \$5,000 were received by 19.6 per cent of the specialists and 38.5 per cent of the general practitioners; 21.5 per cent of the general practitioners and 37.0 per cent of the specialists received net incomes between \$5,000 and \$10,000. Approximately three-quarters (74.3 per cent) of the general practitioners received net incomes of less than

¹Leland, R.B. Income from medical practice. J. Amer. Med'l. Assoc. 98:1689.

²Warren, Lloyd C. Economics of rural medicine as seen from the viewpoint of a country doctor. In Conference of rural medicine, op. cit., p. 191.

\$5,000 a year (See Table 46). Nearly that proportion (69.0 per cent) of the specialists received more than \$5,000 a year.

The average net income as estimated by the Committee on Costs of Medical Care was \$10,000 for specialists as contrasted to \$5,700 for general practitioners; average net incomes were respectively \$7,500 and \$4,100.¹

Factors tending to limit or decrease supply of physicians. Among factors which restrict the number of physicians are the long and expensive period of training for both general practitioners and specialists, the cost of building up a private practice, the high overhead in the way of equipment and office space, lack of knowledge of where to start a profitable practice. It is possible that there are certain elements of monopoly affecting the supply of physicians. There may be some question as to the degree to which requirements for candidacy, standards of training, passing of examinations and final licensing are based on scientific standards and how much they are set up deliberately to limit the number of successful candidates. There also may be certain elements of monopoly in the opposition of medical societies to different forms of organization which might tend to make for more effective rendering of service at lower cost. In some cases societies have threatened to expel members who join or assist in such organization.

The training discussed above under standards indicates the large investment in a medical education. A total of seven years training is

¹Leven, Maurice. The incomes of physicians. (Publication of the Committee on Costs of Medical Care, no. 24.) Chicago, The Univ. of Chicago Press. 1932. p. 177.

required for general practitioners, including two years pre-medical school, four years in medical school, and a year of internship. A still longer period of training is involved for specialists certified by the American Boards, with three years of specialized training beyond graduation from medical school, or three years of internship in lieu of one year; or a total of 12 years beyond high school, nine in school and three in internship. Some of the expense, however, may be subsidized. Medical colleges are in part financed by the government and in part by philanthropic endowments. In addition, there are scholarships given to individual students.

Not only is there a long and expensive period of training facing the prospective physician but also a long and expensive period of building up a practice. The medical school graduate about to start a practice is older than the beginner in many other occupations. According to the Commission on Medical Education the medical graduate begins practice at about 28 years of age. He is likely to be unprepared for the business side of his practice and to be restricted by a code of ethics which does not hamper the business man in general. He has a large initial investment in equipment for which he may have to go into debt, in spite of the probability that his practice is not large enough to pay for the investment quickly. The time involved in the development of a full-time practice is likely to be large.¹

The fact that it takes years for a physician to build up his practice is also indicated by surveys of incomes of physicians. According to data

¹Costs include "such items as office, rent, cost of materials other than long-time equipment, salaries and wages of all employees connected with practice, and depreciation on long-time equipment, but not personal 'salary' or withdrawals for own use, personal and family expenses, purchases of capital equipment or income."

collected by the American Medical Association and analyzed by the Committee on Cost of Medical Care, it takes about eight years for the income of the young physician to reach the median for the entire profession. The highest gross income, as indicated in this study, was reached at about the seventeenth year of practice. This indicates that typically the physician is in his thirties before his income reaches the median and around 50 years of age before he reaches his maximum income. In the survey of the Bureau of Foreign and Domestic Commerce of physicians' incomes the largest net income was received by non-salaried physicians from 50 to 54 years of age. In the youngest age group, ages 25-29, the median net income was \$2,375. The net income rose somewhat regularly up to ages 50-54, at which the median net income was \$5,472, and then declined.¹

Some factors affecting the supply of physicians in rural areas

The factors which affect the supply of physicians in general have of course, a bearing on the supply in rural communities. There are in addition factors which affect the decisions of physicians as to rural or urban location of practice.

When one looks to factors causing physicians to locate in larger cities in preference to rural communities several factors seem especially important: (1) possibility of a larger income; (2) better hospital facilities and availability of specialists and other physicians for consultation so that desired professional standards can more easily be obtained; (3) stimulation of contact with others in the profession; (4) less arduous work due to the fact that there are fewer patients on farms and outside of hospitals where home calls and long drives are

¹Denison and Slater, op. cit., p. 17.

necessary. This last factor is, however, becoming less important with the coming of the automobile. In addition to these factors is the fact that in general little provision is made for training for rural practice. In general, the problems of rural practice have been ignored by schools of medicine.

The way of living in the two types of community may influence the decision of physicians as to where to locate. Preference of some may be for the more personal, informal, friendly rural way of life. On the other hand, the convenience, bustling, and objectiveness of urban living may appeal to others. The apparent lack of cultural advantages in some rural areas doubtless has some effect as well. No studies on attitudes of physicians concerning their interest in rural living versus urban living have been made, however.

Surveys of incomes of physicians bear out the supposition that physicians in rural areas receive lower net incomes than do urban physicians. The Bureau of Foreign and Domestic Commerce reported that in 1941 average and median incomes of physicians rose sharply from those in the smallest places to those in cities of 10,000 to 25,000 and then more slowly to a maximum for those in cities of 100,000 to 200,000. In places of less than 1,000 in population, the average net income of physicians in 1941 was \$2,959; the median net income, \$2,263. In places from 1,000-2,499 the average net income was \$3,682 and the median \$3,212. In places of 2,500-4,999 the average was \$4,251 and the median \$3,406; in places of 5,000-9,999 the average was \$5,150 the median \$4,125. In places of 50,000 to 99,999, however, the average net income was \$6,943 and the median \$5,273. The average net income for

Table 47. Average and median net incomes of physicians
by size of locality, United States, 1941¹

Population	Number reporting	Average net income	Median net income
Under 1,000	160	\$2,959	\$ 2,263
1,000-2,499	137	3,682	3,212
2,500-4,999	113	4,251	3,406
5,000-9,999	118	5,150	4,125
10,000-24,999	162	5,723	4,571
25,000-49,999	113	6,352	4,432
50,000-99,999	153	5,900	4,701
100,000-249,999	152	6,943	5,273
250,000-499,999	163	6,932	5,050
500,000 and over	621	4,850	3,715
Unknown	8		
Total	1,898	5,179	3,912

¹Source: Dennison, Edward F., and Slater, Alvin. Incomes in selected professions. Survey of Current Business 23, no. 8:17. 1943.

all physicians reporting was \$5,179; the median was \$3,912. The relation between the physician's income and the size of community is approximately that shown by other professions surveyed by the Bureau of Foreign and Domestic Commerce.¹

A similar pattern was reported by Leland in the American Medical Association survey of physicians' 1928 incomes.² Here again the largest net incomes reported were those received by physicians in cities from 50,000 to 100,000 in population.³ Again in the survey of the Committee on Costs of Medical Care, the income of 5,905 physicians reported in 1929, a similar pattern appeared in relation of income to size of community. In this study, however, the largest average net incomes were reported in cities of 100,000 to 499,000, in which the average net income was \$17,300.⁴ The largest median net income, \$5,600, appeared in places from 25,000 to 49,999. In places under 5,000 in population the average net income was \$3,200 and the median \$2,500. These are to be compared with an average net income of \$5,700 and a median net income of \$4,100 for all communities.⁵

¹Ibid.

²Leland, op. cit., p. 1683-1691.

³In this study only gross incomes were reported. The average gross income of the 6,163 physicians reporting was \$8,784.65. In places of less than 1,000 population, the average gross income was \$5,700.99. The average rose regularly to \$10,322.18 in cities of 50,000 to 100,000 in population and then declined irregularly. Leven suggests that there may be some bias in the data toward underweighting in the lower incomes, due to the fact that questionnaires reached only members of the American Medical Association and that low income practitioners, particularly in rural areas, are not members. (Leven, op. cit., p. 11.)

⁴Estimated from gross incomes, by means of ratios of average net income to average gross income obtained from data collected by the American Medical Association. See p. 239-240.

⁵Leven, op. cit., p. 35.

There are two major reasons why at present incomes of physicians in urban areas tend to be higher. There is greater opportunity to specialize because of the greater density of population to support specialists. The number of people able to pay for services of physicians may be larger than in rural areas. The higher community income, reflected in the provision of hospitals and equipment by the community, and higher individual income reflected in ability to pay more for medical and allied health services, are important factors.

Lack of hospital facilities and clinical facilities is no doubt a factor affecting the supply of physicians in rural areas. Some facts about hospital and clinical facilities are included in the section which follows. As pointed out above, modern medical education is centered about the use of modern equipment, much of which involves group use for maximum efficiency. The young physician is quite likely to consider accessibility to such equipment in deciding upon a location. In this connection it is of interest to note that the United States Public Health Service found that in 1933 there were 1,493 persons per physician in counties in the United States without general or allied special hospitals in contrast to 637 in counties which had at least 250 hospital beds.¹

Southmayd and Smith suggest that it is possible that the next major advance in the quality of rural medical care will come about through a deliberate strengthening of the ties between small towns and the centers

¹Mountin, Pennell, and Nicolay. Location...physicians: effect of local factors upon location. U.S. Public Health Reports 57:195. Dec. 1942. (Figures transposed from number of physicians per 100,000 population).

of medical leadership.¹ This might come about in various ways, such as having rural physicians take short brush-up courses in the medical schools or in large hospitals, having specialists and clinics spend time in small hospitals for short periods of consultation and teaching, as having graduates spend part of their time in small hospitals as a part of their resident training. This question is discussed further in the following section.

It is probable that in general the rural physician has less interchange of ideas with his profession than does the physician in urban areas. This may in part be due to lack of opportunity because of the fact that there are fewer physicians in his community. It may in part, too, be due to his reluctance to accept consultation service from urban physicians whose prestige may be a threat to him. There seems to be need for some sort of interchange between rural and urban physicians.

Future of Supply of Physicians in Rural Areas

Out of the factors affecting the supply of physicians in general and those causing them to locate in larger cities rather than in rural communities it is possible to make some deductions concerning steps that probably would increase the supply of physicians in rural communities.

Evaluation of present status and trends

Before making deductions concerning such proposals it is important

¹Southmayd, Henry, and Smith, George. Small community hospitals. New York, The Commonwealth Fund. 1944. p. 131.

to appraise changes which have taken place and to consider the significance of present trends.

Shrinkage in relative number of physicians not necessarily indicative of decreased availability of service. It must be remembered that the shrinkage in the supply of physicians in rural areas during the past two decades does not necessarily indicate that the availability of the services of physicians is less today or that the standards of medical care are lower. The accessibility of physicians in larger places to farm people and to rural non-farm people has increased with improvement of transportation and other communication facilities. It has been suggested also that the decrease in number of physicians in areas of low population density may in part reflect an adjustment to an over-supply of members of the medical profession during the period immediately following World War I. However, data presented earlier in the chapter do not indicate an over-supply of physicians at any time.

There is also the question of the extent to which the decrease of physicians in rural areas may be due to lower health needs and the extent to which it is due to the general movement of physicians to the ever enlarging community center. It may well be that the general change is not as yet a matter for apprehension in Iowa.

Continued urbanization as cause for apprehension. However, the problem of an adequate supply of physicians for farm areas may become serious if the trend toward urbanization of physicians continues. In particular it is serious that an increasingly large proportion of older physicians are located in rural areas. Without the location of more

physicians of younger age in rural communities the problem of an adequate supply of physicians in rural areas may be intensified in the near future as older men retire. Then, too, it is likely that some older physicians are less familiar with newer developments than are younger physicians, so that there is some difference in the quality of the service. However, this disadvantage may be offset to some extent by the greater experience of the older group.

Indications that trend toward concentration of physicians in urban areas may continue. One indication that the trend toward concentration of physicians in urban areas may continue is given by the findings of the American Medical Association Committee on Post-war Medical Service, based on returns of questionnaires that were sent out to physicians in military service.¹ Slightly over three-fifths (61.1 per cent) of the medical officers planned to return to former locations of practice after the war. Of those in the remaining two-fifths who expressed a preference as to location of practice, only 12.5 per cent indicated preference for rural practice, i.e., in places under 2,500 in population. The largest proportion, 44 per cent, preferred cities from 25,000 to 250,000 in population. Small cities from 2,500 to 25,000 were preferred by 21.4 per cent and places over 250,000 by 18.7 per cent.²

An encouraging sign, however, was the fact that a slightly larger proportion of military physicians in the younger age group expressed

¹Leuth, Harold C. Postwar planning: results of pilot questionnaire to physicians in service. J. Amer. Med'l. Assoc. 125:558. 1944. A questionnaire was sent to a random sample, every fifteenth doctor, of the 45,000 on duty with the Army, Navy, Public Health Service, or Veterans' Administration. The preliminary report cited included the 927 questionnaires which had been returned at the time.

²Calculated from data, ibid., p. 559.

preference for rural practice than was true for those in older age groups. Among physicians licensed from 1937 to 1943, 14.5 per cent preferred rural practice, whereas only 12.0 per cent of those licensed from 1930 to 1936 and 6.5 per cent of those licensed from 1920 to 1929 indicated this preference. None of those licensed before 1920 preferred rural practice.¹

Possible steps to maintain or increase supply of physicians in rural areas

It is likely that some method of providing the advantages of urban practice for rural physicians would help to maintain the supply of physicians in rural areas or in some cases, to increase the supply. For example, in the American Medical Association survey of the preferences of physicians in military service with respect to practice after the war, it was found that slightly over half of the physicians would like to become associated in private practice with a group of physicians. Nearly the same proportion wanted to specialize, although relatively few expressed the desire to become certified specialists.²

Among steps which would be likely to increase the supply of physicians in rural communities may be listed the following. They need only to be cited at this point. They are discussed further in Part IV. They include:

1. Increased attention to education of physicians for rural practice.

¹Calculated from data, ibid.

²Ibid., p. 559.

2. Reorganization of services among some rural areas, such as
 - a. Planning and cooperation among rural areas to demand the services of a physician for two or three small communities combined.
 - b. Organisation of a community health center in a larger town with part time or full time clinics in smaller communities.
3. Increased interchange of physicians in rural and urban areas as though increased consultation, or through a community health organization on a wider scale.
4. Devising of some prepayment plan in communities so that the rural physician is assured of an adequate income.

Summary and Conclusions

Establishing standards to measure the adequacy of medical and allied facilities is very difficult. Thus far, in the estimation of leaders in the field, it has not been effectively approached. Certain quantitative standards expressed in such terms as number of specific facilities per unit of population and qualitative standards, e.g. specific training required for licensure of physicians, have been set up. In some cases these are suggestive and voluntary; in others mandatory, as in the case of training for those wishing to become physicians.

In this thesis the quantitative standard of one physician per 742 persons, recommended by the Committee on Costs of Medical Care, is used in measuring the supply of physicians. For contrast, reference has been made to the emergency standard of one physician per 1,500 population which was adopted by the War Manpower Commission in 1942 and in general

was accepted by leaders in the health field as a suitable minimum standard for the duration of the World War II.

The difficulties of applying a standard make it at best a crude measure. It is difficult, for example, to evaluate an "effective physician". Again, it is difficult to determine the boundaries of the area which a physician or hospital serves. Trade areas rather than county areas are preferable. They are, however, difficult to define.

In regard to population - physician ratios among the states, Iowa stands in the second quartile, 18 states having relatively more physicians. The ratio of 863 persons per physician in Iowa in 1940 just before World War II, is above one standard above mentioned. The total supply of physicians in Iowa would seem to be nearly adequate despite the fact that the number of physicians has decreased during the past twenty years, following the trend in the nation as a whole. The problem of adequacy of the supply of specialists has not been included in the present study.

Although the total supply of physicians in Iowa just before World War II nearly reached the recommended standard of one physician per 742 persons, the supply in places less than 5,000 in population in 1941 just reached the standard of one physician per 1,000 population. The supply of physicians in places from 1,000 to 2,499 in population just reached the latter standard. In places of less than 1,000 in population the supply of physicians was slightly less than the one per 1,500 population suggested for wartime emergency standard. Nearly 90 per cent of the counties in Iowa had more than 742 persons per physician. However, only

3.2 per cent had more than the 1,500 limit adopted as a war emergency standard.

These data do not take into consideration, of course, the fact that people in these towns may be fairly close to physicians in larger population centers. Present data, however, indicate the inadequacy of supply of physicians in some areas of Iowa. Further research relating to distance from general physicians in a few areas of Iowa would be of value. More information is needed also on the adequacy of supply of certified specialists in Iowa.

The relative decrease in number of physicians in Iowa during the past two decades has been especially marked in small towns. In places less than 2,500 in population the number of persons per physician increased 52 per cent from 1921 to 1940, in contrast to 26 per cent for Iowa as a whole. The proportion of Iowa physicians located in places of less than 1,000 population dropped from 29.2 per cent in 1921 to 19.5 per cent in 1940.

Not only are there relatively fewer physicians in rural areas of Iowa but also these physicians are in general older than those located in urban areas. This is true in other states as well as in Iowa. Another characteristic of rural physicians is mobility. The frequency of moves to and from places of 250 to 2,500 is fairly high.

Important factors tending to influence physicians to locate in larger population centers rather than in rural areas are: possibility of larger income, better hospital facilities and availability of specialists and other physicians for consultation, stimulation of contact with others

in the profession, and less arduous nature of the work. Of possible importance too is the fact that in general little attention is given in medical schools to training for rural practice. The elements of prestige and preference for way of living in the city may have influence as well.

Although the general decrease in supply of physicians in rural areas is not as yet a cause for concern it may become serious if the trend continues. It is important that attention be given to the training of rural physicians, to the organization of services in rural areas in such a way as to provide adequate income, equipment, consultation service, and professional growth for the rural physician.

Some beginnings have been made in group practice with the purpose of providing these improvements. It is likely that there will be further development in this direction. These are discussed further in Part V.

In general the supply of physicians in Iowa is adequate as compared with suggested standards. Except in places of less than 2,500 in population, the distribution of physicians within the state might be improved. Conclusions as to the inadequacy of supply of physicians in rural areas in Iowa cannot be drawn until further research has been done on accessibility of physicians in larger places to the rural families. This would include transportation facilities, cost, and availability of physicians in bordering states. Research might be done by means of interviews with families in these areas.

At the present time ways to attract physicians to rural areas seem important. One way may be reorganization of medical facilities in Iowa

so that more group practice is possible. It is likely that private clinics in which equipment and skills of physicians are pooled are more acceptable at present than government clinics. In some communities coordination between hospitals and physicians in the housing of physicians' offices and pooling of equipment doubtless would be feasible. The community health center seems a desirable goal for the future. A second possibility is the development of some type of prepayment plan which would insure the rural physician of an adequate income. These methods are discussed further in Part V.

Greater attention to the problems of the rural physicians and training for rural practice is needed.

SUPPLY OF HOSPITAL FACILITIES

In getting a picture of the supply of hospital facilities in Iowa with special reference to rural communities the following topics will be considered: (1) general considerations, (2) trends in the supply of hospitals in the United States, and (3) status of supply of hospital facilities in Iowa.

General Considerations

Before exploring the supply of hospital facilities specifically it is well to consider certain general aspects. Among these are: (1) types of services that need to be considered in appraising the extent of hospital services, (2) meaning of the term registered hospitals, (3) classification of hospitals, (4) sources of information concerning the supply of hospitals, and (5) standards useful in examining the supply of hospital facilities.

Types of services that need to be considered

In an evaluation of the adequacy of the supply of hospital facilities must be considered not only such factors as number of hospitals and their bed capacity but also the types of services provided. These fall into two broad groups: (1) the general nature of the services, e.g., general hospital care, maternity care, care of isolation cases, nervous and mental cases, crippled children, and (2) specific diagnostic and therapeutic services which may cut across the broad groups, e.g., X-ray equipment and

the services of a roentgenologist. It is important to know clinic facilities for specific needs.

In the present discussion emphasis is given to the supply of general hospitals with respect to number of hospitals, their bed capacity and ownership. In order to obtain a complete picture more data are needed on specific services furnished by hospitals and clinics. Insofar as registration of hospitals by the American Medical Association and the American College of Surgeons reflects the presence of certain services this will be included. Further research is needed in order to ascertain the extent of services provided by institutions which are not registered. Data are needed on (1) the general nature of services available, e.g., maternity care, (2) diagnostic equipment in terms of type and amount, (3) facilities for special treatment, and (4) personnel available, together with extent of its training.

Registered and non-registered hospitals

As used in this thesis, the term registered hospitals means those approved and listed or registered by the American Medical Association, unless otherwise indicated.

There are many hospitals in the United States which are not registered. According to a study by the U.S. Bureau of the Census in 1939, 18.4 per cent of the hospitals and sanitoriums in the United States and 29.3 per cent of those in Iowa were not registered with the American Medical Association.¹ However, only 2.6 per cent of the total hospital beds

¹U.S. Bur. of Census. Vital Statistics-Special Reports. Vol. 13, no. 53: 588. 1942.

in the nation and 4.4 per cent of those in Iowa were in unregistered hospitals.¹ The proportion of general hospital beds which were in unregistered hospitals was higher, 4.6 per cent in the United States and 9.4 per cent in Iowa.²

An earlier study by the United States Public Health Service in connection with the National Health Inventory in 1936 indicated that the inclusion of unregistered hospitals does not increase the number of beds per unit of population to a great extent. In this study the difference was not as much as 15 per cent in any one state and in only six states did the increase exceed 10 per cent.³

These data seem to indicate that in general the register of the American Medical Association may be taken as an index of the supply of hospital beds.

Classification of hospitals

The classification of hospitals used in this thesis is the one used by the American Medical Association, by which hospitals are classified by type of service and by ownership or control.

Classification by type of service. Hospitals may be classified according to the type of service, e.g., general, nervous and mental, tuberculosis and ortopedic. In this thesis attention is focussed on general hospitals.

¹Ibid.

²Ibid., p. 589.

³Mountin, Joseph W., Pennell, Elliott H., and Flook, Evelyn. Hospital facilities in the United States. U.S. Public Health Bul. 243:5. 1943.

Classification by ownership or control. Hospitals as classified by ownership or control include governmental, non-profit,¹ and proprietary hospitals. Governmental hospitals range from federal through state and county to city owned hospitals. Most of the federal, state and county hospitals are operated also by the respective governments. In many cases, particularly in small cities and also in some counties, the hospital may be owned by the local government but operated by a staff of physicians who receive their income from private practice and not from salaries paid by the governmental unit.

Non-profit hospitals include those operated by church groups and those operated by special non-profit hospital associations set up for the purpose. They are in the main a development of the last fifteen years.

Proprietary hospitals are owned and operated by individuals, partnerships or corporations. They have in general decreased somewhat in importance since the growth of non-profit hospital associations, although they still are important in rural areas.

Sources of information concerning supply of hospitals

The two basic sources of information on the number, type, and capacity of hospitals in the United States are (1) the annual American Hospital Register of the American Medical Association and (2) the register of the American College of Surgeons. When the research being sponsored by the American Hospital Association in several states, including Iowa, is completed there will be a third valuable source. The American Hospital

¹The term "non-profit" is used in this thesis to indicate private non-profit hospitals, owned and controlled by non-profit associations or by church groups. It is true, of course, that government hospitals are not operated for profit. However, government hospitals have certain characteristics which set them apart from other hospitals. For example, very few of them are general hospitals.

Directory published for the first time in 1945, is a reprint of the register published by the American Medical Association in its Journal.

Professional registers of hospitals. The two basic sources mentioned above do not list all hospitals available. According to Davis only 66 per cent of the hospitals in the nation are registered with the American Medical Association and 30 per cent are on the list of the American College of Surgeons.¹ As indicated below, hospitals registered with the American Medical Association do include, however, most of the available hospital beds. Little information is obtained concerning the quality or type of service or the equipment and personnel available. More data are needed concerning the extent of hospitals, the number of people they serve, the equipment and other facilities they provide.

Studies by United States Public Health Service. The United States Public Health Service had charge of the section of the 1935 Census of American Business which pertained to hospitals. As a part of the study, the United States Public Health Service made an analysis of the adequacy of the sources of data on hospitals. Differences were found among the reports of six groups of agencies which collect such data. The tendency to report consistently was found to increase with the increase in size of the hospital. A major cause for discrepancies was thought to be uncertainty as to use of terms. It was thought that uniform definitions would eliminate perplexities on the part of hospitals preparing reports and also on the part of agencies analyzing them, and that more complete

¹Davis, Graham L. Content and administration of a medical care program: hospitals and hospital construction. Amer. J. Public Health 34:1240. 1944.

and uniform instructions to hospitals would be valuable. The conclusion was that adequate comparisons between hospitals, e.g., as to operating costs, must await development of greater consistency than is now found in reports. Comparisons are inadequate when the bases for them vary.

Survey by United States Bureau of Census. Since 1935 the Division of Vital Statistics of the United States Bureau of the Census has included in its mortality statistics information as to whether or not death occurred in hospitals. The American Medical Association Register of Hospitals was used for classifying the institution.

In 1939 the Bureau of the Census conducted a survey, by the questionnaire method, of the 18,462 institutions listed in its files. Its purpose was to classify the institutions not listed by the American Medical Association and to obtain general information on their facilities and use of facilities as a basis for explaining the difference in institutional mortality by areas and describing the importance of these differences in relation to available hospital and related medical facilities.¹

Surveys sponsored by Commission on Hospital Care. A Commission on Hospital Care has recently been appointed by the Committee on Post-war Planning of the American Hospital Association. It is financed by grants from the Commonwealth Fund, the W.K. Kellogg Foundation and the National Foundation for Infantile Paralysis and represents broadly (1) various professional fields including medicine, public health, dentistry, nursing, and hospital administration as well as (2) lay groups, including

¹U.S. Bur. of Census. Vital Statistics-Special Reports. Vol. 13, no. 52: 491. 1942.

organizations of farm groups, labor organizations, industry, and the general public. The purpose of the Commission is to study the nation's resources for the institutional care of the sick and to propose plans for effective use of these resources.¹ The Commission also is analyzing economic, geographic, and population factors, all of which have a bearing on post-war hospital construction and the future of hospital service, including both quantitative and qualitative aspects.²

As of July 1945, preliminary studies had been made in four states. Surveys were under way in 14 states. In 13 other states no survey had been started but enabling legislation had been passed. In three states, including Iowa³ survey committees had been appointed by the governors. In the remaining 12 states no definite action had been taken, although the state hospital associations of six states were working for the official appointment of state study committees.⁴

¹a. American Hospital Association. Commission on Hospital Care. Organization and survey procedure for a state hospital survey. Chicago, The Association. 1944. p. 3.

b. American Hospital Association. Commission on Hospital Care. Scope of study and planning for a state hospital study. Chicago, The Association. 1944.

c. Davis, Graham. Content and administration of a medical care program. Amer. J. Public Health 34:1240-1241. 1944.

²American Hospital Association. Commission on Hospital Care. Hospital survey news. Chicago, The Association. July, 1945. p. 1.

³The Committee was appointed by Governor Blue in January, 1945, with the State Health Commissioner as Chairman.

⁴American Hospital Association, Commission on Hospital Care. Hospital survey news, p. 3.

Need for information. Dr. Mott of the Farm Security Administration, has suggested before hospitals or health centers are constructed it is essential to have intelligent planning so that well equipped institutions of the appropriate type and capacity will be established in the proper places. This requires a plan based on an accurate inventory of needs which take fully into account: (1) the health picture in various parts of the state, (2) transportation facilities, and (3) existing institutions.¹

There is need for data concerning community hospitals permitting practice by osteopathic as well as medical physicians, osteopathic hospitals, and institutions operated by chiropractors or cultists. There is also need for more information concerning convalescent homes. There is need for surveys such as the one carried on in Mississippi by the American Medical Association, in which every county, every hospital, and every local health officer was visited insofar as possible, as well as representatives of charitable organizations and district nursing societies, and others who might know something about the conditions in the state.²

Standards useful in examining supply of hospital services

Standards for measuring the supply of hospital services are of two types. First there are standards of personnel, organization, and physical plant for individual hospitals. Among these are (1) voluntary standards

¹Mott, Fred D., M.D. Rural health parity: federal-state cooperation. Land Policy Review 8, no. 1:14. 1945.

²Statement of Dr. William C. Cutter, Secretary of the Council on Medical Education of the American Medical Association. U.S. Congress. Senate. Committee on Education and Labor. Construction of Hospitals. Hearings... Seventy-sixth congress, third session, on S.3230...Mar. 18 and 19, 1940. p. 47-48.

established by the American Medical Association and the American College of Surgeons which must be maintained by hospitals as requisite for registration by the respective organizations and (2) other voluntary optional standards suggested by organizations such as the National Tuberculosis Association, which are not involved in certification or registration. There are no mandatory standards which must be met by institutions for approval by the Iowa State Board of Health.

Second, there are quantitative standards suggested by professional groups as desirable goals for a unit of population. These are expressed in terms of number of specific facilities per unit of population. Among these are standards suggested by the United States Public Health Service, the Committee on the Costs of Medical Care, the National Tuberculosis Association, and the American Public Health Association.

Standards for registered hospitals. Registration by either the American Medical Association or the American College of Surgeons required that certain standards established by the respective organizations be maintained. In each of them, for example, the physicians must be limited to medical physicians and standard records of patients and their treatment must be kept, with standard nomenclature used. There must be available certain equipment and certain consultation services. For example, the minimum diagnostic and therapeutic facilities under medical supervision which must be available for study, diagnosis, and treatment of patients in order for a hospital to be listed by the American College of Surgeons include "(1) a clinical laboratory providing chemical, bacteriological, serological, and pathological services and (2) an X-ray department

providing radiographic and fluoroscopic services."¹

Suggested quantitative standards. Quantitative standards which have been recommended for hospitals fall into two groups: (1) standards for number of hospital beds per unit of population and (2) standards relative to proximity to hospital, in areas of various population densities. In addition there have been suggestions for optimum size of hospitals.

The quantitative standard in terms of hospital beds per unit of population is helpful as a crude measure of the supply of hospital facilities. It is of course inadequate for measuring quality of service or even quantity of a particular service.

A standard of 4.5 general hospital beds per 1,000 population was used by the Technical Committee on Medical Care of the Inter-departmental Committee to Coordinate Health and Welfare Activities as reported at the National Health Conference in Washington in 1938.² Southmayd and Smith of the Commonwealth Fund use the standard of 4.5 hospital beds per 1,000 people for small community hospitals.³

¹American College of Surgeons. Yearbook 1937/38. Chicago, The College. (Original not seen. Cited in Southmayd and Smith, op.cit., p.140-141.) See also National Approval standards for hospitals and schools. J. Amer. Med'l. Assoc. 112:2168-2168. 1939. See also National approval standards for hospitals and schools. In American Hospital Association. American Hospital Directory, 1945. Chicago, The Association. 1945. p. 70-72.

²National Health Conference, Washington, D.C. The nation's health. Washington, D.C. U.S. Govt. Print. Off. 1939. p. 36.

³Southmayd and Smith, op. cit., p. 107.

The Committee on the Costs of Medical Care suggested the following standards for quantity of hospital beds per 1,000 population: 4.62 general hospital beds, 5.53 for patients with nervous and mental disease, and 1.32 for tuberculosis patients. The total number of all hospital beds recommended per 1,000 persons was 11.58. Of the 4.6 general hospital beds it was recommended that there be 2.1 for medical wards, 1.7 for surgical wards, 0.68 for maternity cases and 0.13 for psychiatric cases.¹

The American Public Health Association, although it has no officially adopted standards, has used the following standards in several studies: general hospital beds, 5 per 1,000 population; children's hospital beds, 0.5 per 1,000 population; maternal, 0.5; convalescent, 0.2; communicable disease, 0.5; and mental, 0.3.²

The National Tuberculosis Association suggests as a standard for hospital beds for tuberculosis patients two beds per recorded annual death, if accurate vital statistics are available, or one bed per 1,000 population if such data are not available.³

This is also the standard quoted by Dr. Farran of the United States Public Health Service.⁴

¹Lee and Jones, op. cit., p. 118.

²Boyd, Edith M., op. cit.

³National Tuberculosis Association. Tuberculosis sanitarium planning. New York, The Association. p. 3, 4, 7. Standards of space and construction of hospitals also are suggested.

⁴U.S. Congress, Hearings on S3230, p. 17.

The standard for beds for tuberculosis set up by the Committee on Administrative Practice of the American Public Health Association is similar but a difference is noted between the standard for rural areas and that for urban. The Committee recommends two beds per annual death from tuberculosis or 100 to 200 beds per 100,000 population for rural areas and 400-600 beds per 100,000 population for urban areas. The reason for the difference was not explained. The Committee on the Cost of Medical Care recommends 138 beds for tuberculosis cases per 100,000 population.¹

Concerning hospital areas and maximum distances from hospitals, Dr. Parran of the United States Public Health Service suggests the standard of a radius varying from 15 miles from a central facility when the population is 50,000 or more to 35 miles when there are 50 or less persons per square mile. He points out that not only the number of persons but also such factors as geography and availability of transportation must be considered.²

A standard of four hospital beds per 1,000 population for an area of 25 miles radius surrounding the hospital was suggested by the United States Public Health Service for construction of hospitals in defense plant areas under the Lanham Act.³

¹Lee and Jones, op. cit., p. 120.

²Testimony of Dr. Parran. U.S. Congress. Senate Committee on Education and Labor. Wartime health and education. Hearings ... Seventy-eighth congress, first session, on S. Res. 74. Washington, U.S. Govt. Print. Off. 1944.

³Plumley, Margaret Lovell. Federal aid to hospitals: wartime assistance under the Lanham Act. Med'l. Care 3:10. 1945.

It is held by many persons and professional groups that a general hospital for rural areas should be large enough to serve the whole trade area rather than a small locality. The Committee on Administrative Practice of the American Public Health Association suggests a standard for rural areas of one hospital for a region of approximately 50,000 population. This is the same size which the Committee recommends for the rural public health unit.¹

Southmayd and Smith point out that the size of the hospital cannot be determined by any universal formula since several factors enter into the decision, such as sectional differences and local habits. They suggest that one large hospital, adequate to serve a whole trading area, is preferable to many small ones since the larger hospital may be able to provide more adequate equipment and personnel. They recommend one hospital for a population of 50,000 as a goal for rural hospitals.² They state:

If 50,000 to 100,000 people will use a single hospital placed at the natural center of a homogeneous trading area, they can have about as good a hospital as the same number of people in a single city would expect to have, and a far better one - both in physical equipment and professional resources - than a single small town and its immediate neighborhood are likely to be able to support for their own use.³

This standard is larger than the size used by the Bingham Associates Fund in its experiment with a radial system of hospitals, discussed in

¹American Public Health Association. Committee on Administrative Practice. Progress report: units of local health service for all the states. Amer. J. of Public Health 33:404-409. 1943.

²Southmayd and Smith, op. cit., p. 107.

³Ibid., p. 123.

Part IV, in which there are small rural hospitals of 15 to 20 beds linked with a larger district hospital of 200 beds.

The American College of Surgeons has concluded that smaller hospitals tend to be inadequate. It does not even inspect hospitals under 25 beds for approval. On the other hand, the American Medical Association approves many hospitals with less than 25 beds. It is, however, of interest to note that by far the majority of hospitals not registered with the American Medical Association are small hospitals of less than 50 beds, especially those less than 25 beds. Indications are that hospitals having at least 50 beds are better able to meet the standards required for registration.¹ It is more difficult for smaller hospitals to obtain special services. In the large centers the medical staff organization is built around the specialists. There are progressively fewer specialists as communities get smaller and hospitals get smaller. It is estimated that about 80,000 people are necessary to support one radiologist and 100,000 for one pathologist. Two average rural counties could support a radiologist and three could support a pathologist. The absence of these specialists is one of the weaknesses in rural medical care.²

Standard used in this thesis. This thesis is limited in the main to a consideration of general hospital beds. The standard used here for evaluating the supply of general hospital beds in Iowa is 4.5 per 1,000

¹U.S. Bur. of Census. Vital Statistics-Special Report. Vol. 13, no. 53. p. 598. 1942.

²Davis, Graham L. Those horse and buggy hospitals must go. Modern Hospital, 62, no. 4:50. 1944.

population. This is the standard used at the National Health Conference in Washington. It is slightly below the standard recommended by the Committee on the Cost of Medical Care.

For total hospital beds the standard of 11.6 beds per 1,000 population is used here. It is the one recommended by the Committee on the Cost of Medical Care.

For radial distance within which a hospital should be located the maximum of 35 miles suggested by Dr. Farran for areas with population density of 50 people or less per square mile is used, since 72 counties in Iowa have less than this density of population. It is recognized by the author that many areas in Iowa have greater population density than this and that doubtless a radius of less than 35 miles from a hospital would be a better measure of adequacy of hospital supply.

Trends in Supply of Hospital Facilities in United States

The increase in facilities is reflected by growth in number of hospitals and increase in hospital beds per 1,000 people.

Percentage increase in hospitals

According to the American Medical Association the capacity of registered hospitals in the United States in 1940 had nearly doubled since 1918 and tripled since 1909.¹

¹American Medical Association. Council on Medical Education and Hospital Service. Hospital service in the United States. J. Amer. Med'l. Assoc. 114:1157. 1940.

Total change in hospitals. For the United States in the decade from 1930 to 1940 there was an increase of 27.3 per cent in the bed capacity of hospitals, although the total number of hospitals decreased 6.4 per cent. The increased capacity was largely in Government hospitals, particularly in federal hospitals, the capacity of which increased 71.1 per cent, and in the non-profit associations which developed during the thirties. Proprietary hospitals decreased 73.9 per cent in bed capacity; fraternal and industrial hospitals decreased to none. It is possible that some of the proprietary and fraternal hospitals were reorganized as non-profit hospitals.

Percentage change in hospitals by type of control. It is to be noted in Table 48 that the bed capacity of registered hospitals under various types of control in the United States increased from 1930 to 1940 to a greater extent than did the number of hospitals. Federal hospitals increased 16.7 per cent in number in contrast to 71.1 per cent in bed capacity. State, city, city-county, and church hospitals increased in capacity 41.1, 25.3, 15.8, and 3.4 per cent respectively, whereas in number they decreased 10.4, 8.8, 13.5, and 1.9 per cent respectively. County hospitals were stable in number but increased 39.0 per cent in capacity. On the other hand proprietary hospitals decreased both in capacity, 73.9 per cent and in number, 55.8 per cent.

Percentage change in hospitals by type of service. As to the trend in registered hospitals in the United States with respect to type of service it is to be noted in Table 49 that although general, nervous and

Table 43. Distribution of hospitals by ownership and control,
United States, 1930, 1940

Type of hospital	: 1930 ¹ :	: 1940 ¹ :	: Per cent change : 1930-1940 ² :
A. Number of hospitals			
Federal	288	336	16.7
State	591	521	-10.3
County	505	514	1.8
City	364	332	- 8.8
City-county	74	64	-13.5
Total government	1,812	1,767	- 2.5
Church	1,017	998	- 1.9
Fraternal	77	0	
Non-profit association	0	1,903	84.2
Industrial	146	0 ³	
Total non-profit	1,240	2,901	134.0
Individual and partnership	1,620	1,174	-27.5
Independent and corporation	2,047	449	-78.1
	3,667	1,623	-55.7
Total non-government	4,907	4,524	- 7.8
Total of all hospitals	6,719	6,291	- 6.4
B. Bed Capacity of hospitals			
Federal	63,501	108,928	71.1
State	405,309	572,079	41.1
County	73,615	102,340	39.0
City	63,064	79,045	25.3
City-county	14,157	11,297	-15.8
Total government	619,726	873,689	41.0
Church	116,346	120,809	3.4
Fraternal	5,606	--	
Non-profit association	--	177,681	144.3
Industrial	6,703	--	
Total non-profit	129,155	298,490	131.1
Individual and partnership	38,557	28,958	-24.9
Independent and corporation	168,431	25,108	-85.1
Total proprietary	206,988	54,066	-73.9
Total non-government	336,143	352,556	1.9
Total of all hospitals	955,869	1,226,245	28.3

(Footnotes to Table 48.)

¹Source: American Medical Association. Council on Medical Education and Hospital Service. Hospital service in the United States. J. Amer. Med'l. Assoc. 96:1015-1011, 1931; 116:1061-1065, 1941; 122: 1012-1016, 1944.

²Computed from above data.

³In this classification the data for industrial hospitals are combined with non-governmental hospitals. There were only 53 industrial hospitals registered for the United States, as indicated in Table 49.

Table 49. Distribution of hospitals and hospital beds by type of service, United States, 1930, 1940

Type of hospital	1930		1940		Per cent
	Number	Per cent	Number	Per cent	change 1930-1940
A. Hospitals¹					
General	4,302	64.0	4,432	70.4	3.0
Nervous and mental	581	8.3	602	9.6	13.4
Tuberculosis	515	7.7	479	7.6	-7.3
Maternity	151	2.2	116	1.8	-23.2
Industrial	155	2.3	33	0.5	-78.7
Eye, Ear, Nose and Throat	73	1.1	41	0.9	-43.8
Children's	62	1.0	46	1.3	-25.8
Orthopedic	64	1.0	84	2.3	31.2
Isolation	88	1.3	57	0.8	-35.2
Convalescent and Rest	162	2.4	142	0.7	-12.3
Hospital Department of Institutions	460	6.8	226	3.6	-50.9
All other hospitals	126	1.9	33	0.5	-73.8
Total	6,719	100.0	6,291	100.0	-6.4
B. Hospital beds¹					
General	371,609	39.4	462,360	37.7	24.4
Nervous and mental	437,919	45.8	621,284	50.7	41.9
Tuberculosis	65,940	6.9	78,246	6.4	18.7
Maternity	6,527	0.6	5,647	.5	-13.5
Industrial	6,875	0.7	2,792	.2	-59.4
Eye, Ear, Nose and Throat	2,702	0.2	2,470	.6	-8.6
Children's	5,597	0.5	4,781	.6	14.6
Orthopedic	6,348	0.6	7,682	.7	20.7
Isolation	7,608	0.8	7,350	.3	-3.4
Convalescent and Rest	7,374	0.7	8,721	.2	18.3
Hospital Department of Institutions	27,232	2.8	21,702	1.8	-20.3
All other hospitals	10,140	1.0	3,230	.3	-69.1
Total	955,869	100.0	1,226,245	100.0	28.3

¹ Source: American Medical Association. Council of Medical Education and Hospital Service. Hospital service in the United States. J. Amer. Med'l Assoc. 96:1012-1013; 1931; 116:1064, 1065, 1941.

² Computed from above data.

³ Computed. Population for 1930 and 1940, U.S. Census; 1930. Population. 1:18. 1943.

Table 49. (continued)

Type of hospital	1930		1940		Per cent
	Number	Per cent	Number	Per cent	change 1930-1940
C. Bed Capacity per 1,000 persons ²					
General	3.0		3.5		
Nervous and mental	3.6		4.7		
Tuberculosis	.5		.59		
All others	.1		.0		
Total	7.8		8.3		
D. Population per hospital bed ³					
General	330.4		284.8		
Nervous and mental	280.4		211.9		
Tuberculosis	1861.9		1682.8		
All others					
Total	128.4		107.4		

mental, and tuberculosis hospitals constituted over 90 per cent of the bed capacity in both 1930 and 1940 there was a growth in the capacity of other types as well, except maternal and industrial hospitals and hospital departments of institutions. The greatest absolute growth was in nervous departments of institutions. The greatest absolute growth was in nervous and mental hospitals, which increased 13.4 per cent in number and 41.9 per cent in bed capacity. General hospitals increased 3.0 per cent in number and 24.4 per cent in bed capacity.

Increase in hospital beds per 1,000 population

Changes in hospital bed capacity must be considered not in themselves but with respect to changes in population. The total hospital bed capacity in the United States increased from 7.8 per 1,000 population in 1930 to 9.3 in 1940. Expressed differently, this means that there were fewer persons per hospital bed in 1940, 107 compared with 128 in 1930. Of general hospital beds the ratio remained very nearly the same during the decade, increasing less than 0.1 beds per 1,000 population. There were 3.0 general hospital beds per 1,000 population in 1930 and 3.5 in 1940. Both of these figures are below the standards of 4.5 suggested earlier. The number of persons per general hospital bed decreased slightly, that is to say, from 330 in 1930 to 285 in 1940. The number of beds in nervous and mental hospitals per 1,000 population rose from 3.6 in 1930 to 4.7 in 1940, which is less than the 5.6 beds per 1,000 population recommended by the Committee on Costs of Medical Care. The ratio for beds in tuberculosis hospitals remained at 0.5. This is less than the standard

of one bed per 1,000 population suggested by the National Tuberculosis Association.¹

It is to be noted in Table 49 that over 90 per cent of the bed capacity of hospitals in the United States in both 1930 and 1940 was provided by general, nervous and mental, and tuberculosis hospitals. General hospitals in 1930 provided 39.4 per cent of the total capacity; in 1940 37.7. In 1930 the bed capacity of mental and tuberculosis hospitals equalled 45.8 per cent of the total; in 1940 50.7 per cent. The proportion of hospital beds provided by tuberculosis hospitals remained fairly stable: 6.9 per cent in 1930 compared with 6.4 per cent in 1940.

Outlook

It is likely that the relative supply of hospitals after the war will be increased, not only the supply of hospitals needed for war veterans but also the supply of hospitals for the population in general. Several bills have been introduced into Congress proposing aid in the construction of hospitals in communities in which they are needed. As pointed out in Chapter I there is growing interest among various groups for the more adequate provision of such services.

¹ Ratios computed from data on hospital services in J. Amer. Med'l Assoc. 96:1012-1013, 1931, and 116:1064-1065, 1941, and U.S. Census: 1940. Population: 18. 1943.

Status of Supply of Hospital Facilities in Iowa

In this section are presented certain facts concerning the supply of hospital facilities in Iowa. Aspects considered include total supply of hospitals and hospital beds, with emphasis on general hospitals, distribution of general hospitals among localities of various sizes, and expenditures per capita by hospitals in Iowa.

Total supply of hospitals in Iowa

Here are presented the status of supply of hospitals in Iowa with respect to number of hospitals and their bed capacity.

Number of hospitals. There were, in 1940, 160 hospitals in Iowa registered with the American Medical Association. Of these 117 were general hospitals, 12 nervous and mental, six tuberculosis, four maternity, while eight were hospital departments in state institutions. In addition there was one hospital each of the following types: industrial, isolation, and rest and convalescent.¹ (See Table 50).

Total hospital bed capacity in Iowa. In 1940 Iowa hospitals provided a total capacity of 8.2 beds per 1,000 people. This is below the standard of 11.8 recommended by the Committee on Costs of Medical Care. Expressed in a different form, this means that there were 122 persons per hospital bed in 1940.

¹American Medical Association. Council on Medical Education and Hospitals. Hospital service in the United States. J. Amer. Med'l. Assoc. 116:1064-1965. 1941. In 1943 there were 141 hospitals, a decline of four general, one tuberculosis and two maternity hospitals (Ibid., 124:845-846, 1944). The data for 1940 are used in the discussion in order for the picture to be comparable with that of the supply of doctors during the year preceding entry of the United States into the war.

Table 50. Distribution of hospitals and hospital beds by type of service, Iowa, 1930, 1940

Type of hospital	: : 1930 :	: : 1940 :	: Per cent : of change : 1930-1940
A. Hospitals ¹			
General	129	117	- 9.3
Nervous and mental	13	12	- 7.7
Tuberculosis	6	6	.0
Maternity	4	4	.0
Industrial	1	1	.0
Isolation	4	1	-75.0
Convalescent	2	1	-50.0
Hospital departments of institutions	11	8	-27.3
All other	<u>3</u>	<u>0</u>	<u>-100.0</u>
Total	174	150	-13.8
B. Bed capacity of hospitals ¹			
General	6,850	7,126	4.0
Nervous and mental	9,486	11,987	26.5
Tuberculosis	771	889	15.3
Maternity	98	123	25.6
Industrial	40	40	0.0
Isolation	91	49	46.2
Convalescent	55	20	63.6
Hospital departments of institutions	584	490	16.1
All other	<u>232</u>	<u>0</u>	<u>-100.0</u>
Total	18,217	20,734	13.8

¹Source: American Medical Association. Council of Medical Association and Hospital Service. Hospital service in the United States. J. Amer. Med'l. Assoc. 96:1012-1013, 1931, 118:1064-1065, 1941; 122: 845, 1943.

²Ibid., 96:1057.

³Calculated from above data and data from U.S. Census: 1940. Population 2:851.

Table 50. (continued)

Type of hospital	:	:	:
	1930	1940	Per cent
			of change
			1930-1940
C. Beds per 1,000 populations			
General	2.8	2.8 ²	0.0
Nervous and mental	3.8	4.7	23.7
Tuberculosis	.3	.4	33.3
All other	—	—	—
Total	7.4	8.2	10.8
D. Population per hospital bed			
General	360.7	356.2	1.2
Nervous and mental	280.5	211.6	18.8
Tuberculosis	3,204.9	2,855.2	10.9
All other	—	—	—
Total	135.6	122.4	9.7

The above number of total hospital beds per 1,000 population also was indicated in the survey by the Bureau of the Census in 1939, which included both registered and unregistered hospitals.¹ Only six states had a hospital bed rate of 11.5 or over per 1,000 of the 1940 population, according to this survey.² The range among the states was from 14.04 beds per 1,000 population in Massachusetts to 4.35 in Mississippi. Iowa was in twenty-ninth position, i.e., 28 states had more hospital beds in registered and unregistered hospitals than did Iowa. However, Iowa had more than the average for the United States, which was 9.01 hospital beds per 1,000 population.³

Bed capacity in general hospitals in Iowa. The above figures relating to the total supply of hospitals are somewhat misleading with respect to the adequacy of supply. To the population as a whole general hospitals are likely to be more important than special types, yet less than half of the total bed capacity of hospitals in Iowa was in general hospitals. In the 117 registered hospitals in Iowa there was a ratio of 2.3 general hospital beds per 1,000 population, or 356 people per general hospital bed.⁴ This is below the recommended standard of 4.5 general hospital beds per 1,000

¹U.S. Bur. of Census. Vital Statistics-Special Reports. Vol. 13, no. 53:533. 1942. These states included, in descending order: Colorado, New York, Massachusetts, Rhode Island, Vermont, and Maryland.

²Ibid., p. 533. These were Colorado, Maryland, Massachusetts, New York, Rhode Island, and Vermont.

³Ibid.

⁴American Medical Association, Council on Medical Education and Hospitals, Hospital service in the United States. 116:1064.

population suggested earlier in the discussion. Even when unregistered hospitals are included Iowa has less than the recommended supply of general hospital beds. In 1939, according to the Bureau of the Census, there were only 3.2 general hospital beds per 1,000 population in Iowa when both registered and unregistered hospitals were included.¹

Bed capacity in certain special hospitals in Iowa. Over half of the bed capacity in Iowa hospitals in 1940 was in 12 mental and nervous hospitals, in which there were 4.7 beds per 1,000 population. This is less than the 5.58 beds recommended by the Committee on Costs of Medical Care. The population per mental and nervous hospital bed was 212. Of tuberculosis hospital beds there were 0.4 per 1,000 population² contrasted with the standard of one bed per 1,000 population. The population per tuberculosis hospital bed in Iowa was 2,855.

Iowa as compared with other states. Among the states Iowa in 1940 stood thirty-sixth in the array of states listed from highest to lowest according to general hospital beds per 1,000 population. That is, in 35 states proportionately more general hospital beds were offered than in Iowa. Mississippi, Arkansas, and Kentucky had the lowest number of general hospital beds per 1,000 population with 1.5, 1.6, 1.9 beds per 1,000

¹U.S. Bur. of Census. Vital Statistics-Special Reports. Vol. 13, no. 53: 539. 1942.

²In addition to the 7,126 general hospital beds provided in 117 institutions and 11,997 beds in 12 mental hospitals in Iowa in 1940 there were 889 beds and six tuberculosis hospitals, 123 beds in four maternity hospitals, 40 beds in an industrial hospital, 49 in isolation hospitals, 20 in one convalescent home and 490 in eight hospital departments of institutions. American Medical Association, Council on Medical Education and Hospitals, Hospital Service in the United States, 116:1064.

population, respectively. Nevada provided the largest number of beds proportionately with 6.2 beds per 1,000 population. Montana and California were next, with ratios of 5.6 and 5.3 respectively.¹ (See Table 51).

Only three states, Mississippi, Arkansas, and Kentucky had less than two general hospital beds per 1,000 population in 1940. Eleven states, among them Iowa, had from two to three. Fifteen states had from three to four. Twelve had from four to five and six had over five per 10,000 population, among which were Nevada, Montana, California, Wyoming, and Colorado.²

In the Bureau of the Census survey in 1939 in which both registered and unregistered hospitals were included, Iowa was in thirty-fourth place, with its 3.2 general hospital beds per 1,000 persons, 33 states having relatively more general hospital beds in registered and unregistered hospitals. Mississippi still was at the bottom of the list, with 1.2 general hospital beds and Nevada was at the top with 7.1. The average for the United States was only 3.8 even when beds in unregistered hospitals were included. Less than a third of the states had as many general hospital beds as the 4.5 per 1,000 population recommended by the Committee on Costs of Medical Care.³

¹Ibid., p. 1058.

²Ibid., p. 1059.

³U.S. Bur. of Census. Vital Statistics-Special Reports. Vol. 13, no. 53:539. 1942.

Table 51. Hospital beds per 1,000 population: standard: United States; Iowa, high, median and low ranking states; and Iowa, 1940

Classification	All	General	Nervous & mental	Tuberculosis
Standard ¹	11.58	4.62	5.58	1.38
United States ²	9.01	3.83	4.59	1.27
State ranking:				
High	14.04 ³	7.13 ⁵	10.06 ⁶	2.93 ⁸
Median	8.56	3.94	4.11	1.27
Low	4.35 ⁴	1.57 ⁴	1.79 ⁷	0 ⁵
Iowa ²				
Number of beds	8.15	3.18	4.61	1.88
Place in array	29.00	34.00	19.00	12.00

¹Source: Lee, Roger I. and Jones, Lewis Webster. The fundamentals of good medical care and an estimate of the service required to supply the medical needs of the United States. (Publication of Committee on Costs of Medical Care: No. 22.) Chicago, the Univ. of Chicago Press. 1932. p. 118.

²Source: U.S. Bur. of Census. Vital Statistics-Special Reports. Vol. 13, no. 53:539, 540, 543. 1942. (Includes American Medical Association registered and non-registered hospitals).

³Massachusetts.

⁴Mississippi.

⁵Nevada.

⁶New York.

⁷New Mexico.

⁸Rhode Island.

Distribution of general hospitals in Iowa

The distribution of hospitals among localities of various sizes in Iowa is important in a consideration of adequacy of the supply.

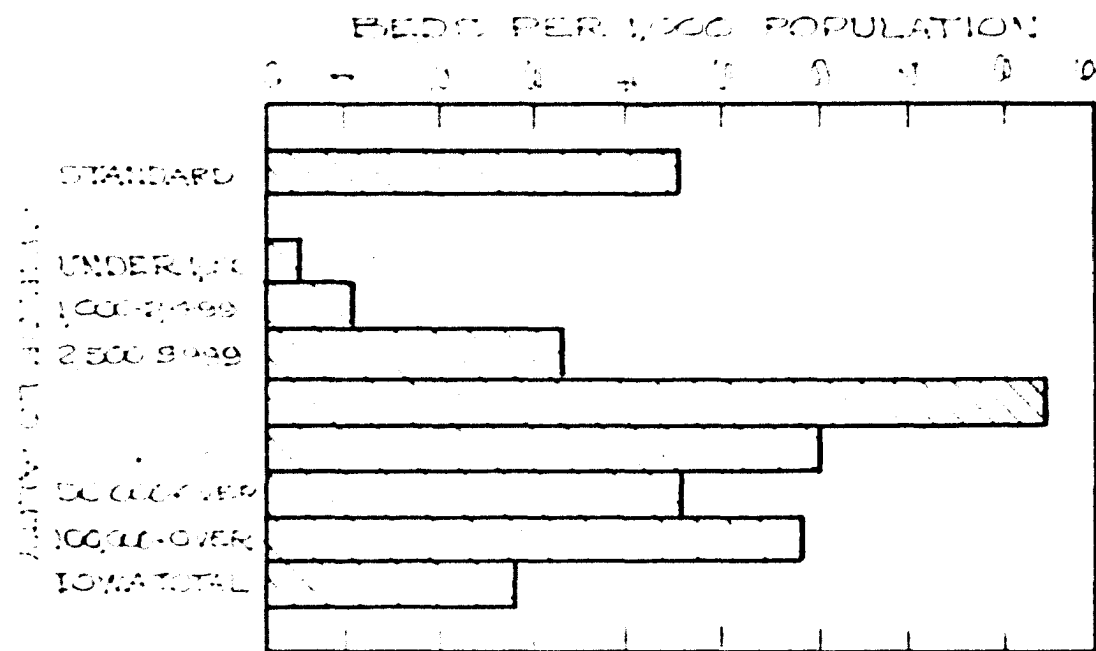
Distribution of general hospitals in various localities in the United States as a whole. Data concerning the distribution of hospitals in 1939 by size of community are reported by the Bureau of the Census for the United States as a whole but not for the separate states. Approximately a third (32.7 per cent) of all registered and unregistered hospitals and 27.5 per cent of the general hospitals in the United States in 1939, as reported by the Bureau of the Census, were located in places under 2,500 in population. Over half of both types were in places under 10,000 in population: 55.7 per cent of all hospitals and 53.4 per cent of general hospitals in the United States. The distribution of hospital beds by size of community was not reported. Of the nursing, convalescent, and rest homes 30.8 per cent were in places under 2,500 population; 46.0 per cent were in places under 10,000 population.¹

Distribution of general hospital beds in Iowa by size of locality.

It has been noted that the number of general hospital beds in Iowa per 1,000 population is less than the standard of 1.5 per 1,000 population set up by the Committee on the Costs of Medical Care. Data in Figure 19 and Table 52 indicate that this is due to lack of hospital facilities in places under 10,000. The pattern of relative adequacy of general hospitals in places of various sizes is similar to that of the supply of physicians.

¹U.S. Bur. of Census. Vital Statistics-Special Reports. Vol. 13, no. 52: 594-595. 1942.

Figure 19. General hospital beds, by size of locality, Iowa, 1940¹



¹ Sources: Computed from data in (1) American Medical Association. Council on Medical Education and Hospital Service. Hospital service in the United States. J. Amer. Med'l. Assoc. 116:1064. 1941. and (2) U.S. Census:1940. Population 2:847. 1943.

Table 52. Distribution of population and general hospital beds by size of locality, Iowa, 1940

Size of community	Population ¹		General hospital beds			Number of persons per general hospital bed
	Number	Per- centage	Number ²	Per- centage ³	Per 1,000 population ³	
Less than 1,000	898,027	35.4	27	0.4	0.3	33,260.26
1,000-2,499	405,170	16.0	435	5.1	1.1	931.43
2,500-9,999	428,130	16.8	1,414	19.7	3.3	302.78
10,000-49,999 ⁴	376,361	14.8	3,168 ⁵	44.0	8.4 ⁶	118.80
50,000-99,999	269,044	10.6	1,198	16.7	4.5	224.48
100,000 & over	161,514	6.4	942	13.1	5.8	171.46
Total	2,539,246	100.0	7,184	100.0	2.8	353.32
Less than 10,000	1,731,327	68.2	1,876	26.2	1.1	
10,000 & over	80	31.8	5,308 ⁷	73.8	6.8	

¹U.S. Census:1940. Population 2:847. 1943.

²American Medical Association. Council on Medical Education and Hospital Service. Hospital service in the United States. J. Amer. Med'l. Assoc. 116:1064. 1941.

³Calculated from above data.

⁴Includes Iowa City.

⁵2268 excluding Iowa City.

⁶6.0 excluding Iowa City.

⁷4208 excluding Iowa City.

⁸5.21 excluding Iowa City.

In both cases the relative supply in 1940 was greatest in places from 10,000 to 50,000 in population and in Des Moines. In these two groups the number of general hospital beds was greater than the recommended standard. There were 6.0 beds per 1,000 population within and surrounding places of 10,000 to 50,000 population. This figure excludes the general hospital beds in Iowa City. With the latter included the ratio was 8.4. Des Moines had 6.8 beds per 1,000 population.

The supply of general hospital beds in places of 50,000 to 100,000 just reaches the standard of 4.5. On the other hand, there are but 3.3 general hospital beds per 1,000 persons within and surrounding places from 2,500 to 10,000 population. As might be expected, the supply in places of less than 2,500 is still less: 1.1 per 1,000 in places from 1,000 to 2,499 and only 0.3 in smaller places.

The fact that the supply of general hospital beds is low in places less than 10,000 is not of great importance if these areas are close to larger population centers which have adequate supplies. However, not all rural areas are close to centers with adequate hospital facilities. For example, in a survey among Iowa Farm Bureau Federation families conducted by the Women's Committee of the organization in 1937 it was found that the range of distance from hospitals at which approximately 1,300 members in 75 counties lived, was from 1.75 to 50 miles.¹ This, of course, was not a representative sample of Iowa farm families but it does indicate to some extent distances which families must travel to obtain hospital services.

¹Sayre, Mrs. Raymond L. Des Moines, Iowa. Information on Iowa Farm Bureau Federation survey of health service needs of Iowa farm families, 1937. Private communication, 1945.

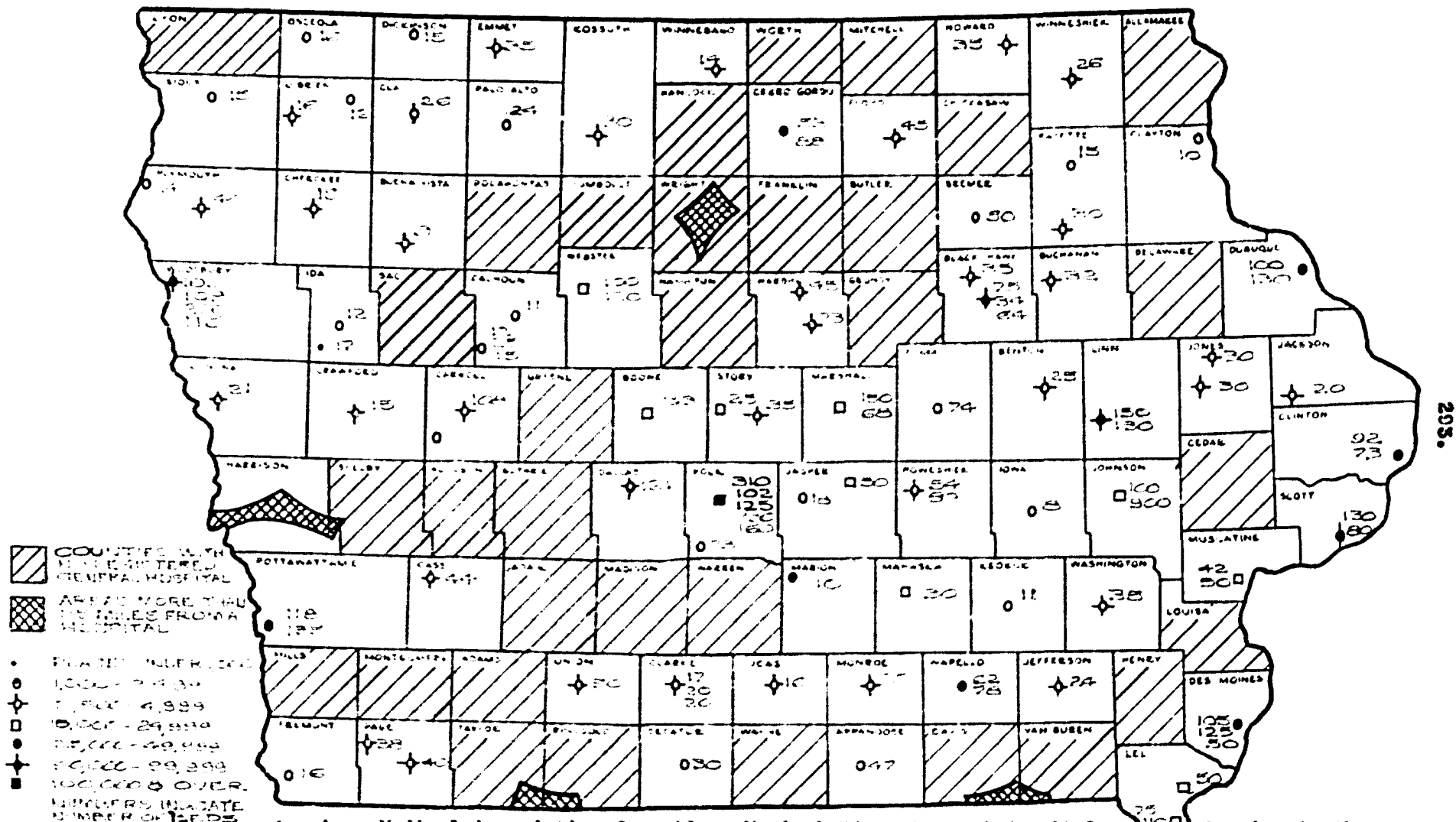
However, in general, hospitals are fairly well distributed throughout the state, as indicated in Figure 20. That is, despite the fact that 33 counties in Iowa have no registered general hospitals, there are only four small areas in the state which are more than 35 miles from a general hospital. This, it will be remembered, is the maximum distance recommended for areas in which the population is less than 50 per square mile. Since 72 counties in Iowa have less than this density the maximum distance is used in estimating the adequacy of proximity of hospitals. The largest areas in Iowa which are more than 35 miles from a hospital are in Wright and Harrison counties.¹ There are two other small areas in Iowa, close to the Missouri border, which are more than 35 miles from a hospital.

Implications. Since the number of registered general hospital beds in Iowa is less than the recommended standard and yet the distance from hospitals in most parts of Iowa is not unduly great it would seem that the major need in the state is for an increase in capacity of hospitals already existing rather than for the building of new hospitals. The latter may be desirable in a few sections of the state, however.

To bring the capacity of general hospital beds in Iowa to the recommended ratio of 4.5 per 1,000 persons would require the addition of 4,280 beds. If the number of general hospitals in all counties having

¹Parts of Harrison County may be served by a 16 bed hospital at Blair, Nebraska. It is more likely that for the most part hospitals at Council Bluffs and Sioux City are used. Specific data on use of hospitals are not available.

Figure 20. Distribution of general hospitals and general hospital beds,¹
by size of locality and by county, Iowa, 1940²



Sources: American Medical Association Council on Medical Education and Hospital Service in the United States. J. Amer. Med'l Assoc. 116:1097-1099. 1942. It is to be noted that in 1939 the U.S. Bur. of Census reports hospitals (unregistered, included) in the following 13 counties: Allamakee, Chickasaw, Franklin, Greene, Hamilton, Henry, Madison, Mitchell, Montgomery, Sac, Shelby, Wayne and Wright. (See Fig. 21.) It is also to be noted that in 1944 Blue Cross hospitals are listed in 3 counties which are not included in the register of the American Medical Association in 1940 (See Fig. 20) or by the U.S. Bur. of Census in 1939 (See Fig. 21). These counties are: Chickasaw, Lyon & Warren.

less than 50 beds were increased to 50 there still would be need for 1,514 to bring the total to the recommended number. Such an addition would increase to only 2.6 the number of hospital beds per 1,000 persons in places under 10,000 in population.

The present location of general hospitals indicates that the hospitals in places of 2,500 to 10,000 in population are the logical ones to be expanded first (See Figure 20). An expansion of general hospitals in these areas would bring more nearly the recommended number of hospital beds within easy travel distance of all parts of Iowa. It is possible that an expansion of hospitals in places of less than 2,500 would be less efficient than expansion in larger places because the hospitals which could be supported by the population might still be too small to maintain certain diagnostic and therapeutic equipment and staff. It is also likely that large hospitals such as those in Sioux City, Council Bluffs, Waterloo, Fort Dodge, Davenport, Burlington and Des Moines might need to be expanded to serve as centers for smaller hospitals.

Conclusions as to where and in what way expansion of general hospitals in Iowa should be expanded should await the report of the State Hospital Survey Committee. There is need for an investigation of unregistered as well as registered hospitals. It is likely that in many cases the former can be developed and improved. There is need also for a survey of osteopathic hospital facilities.

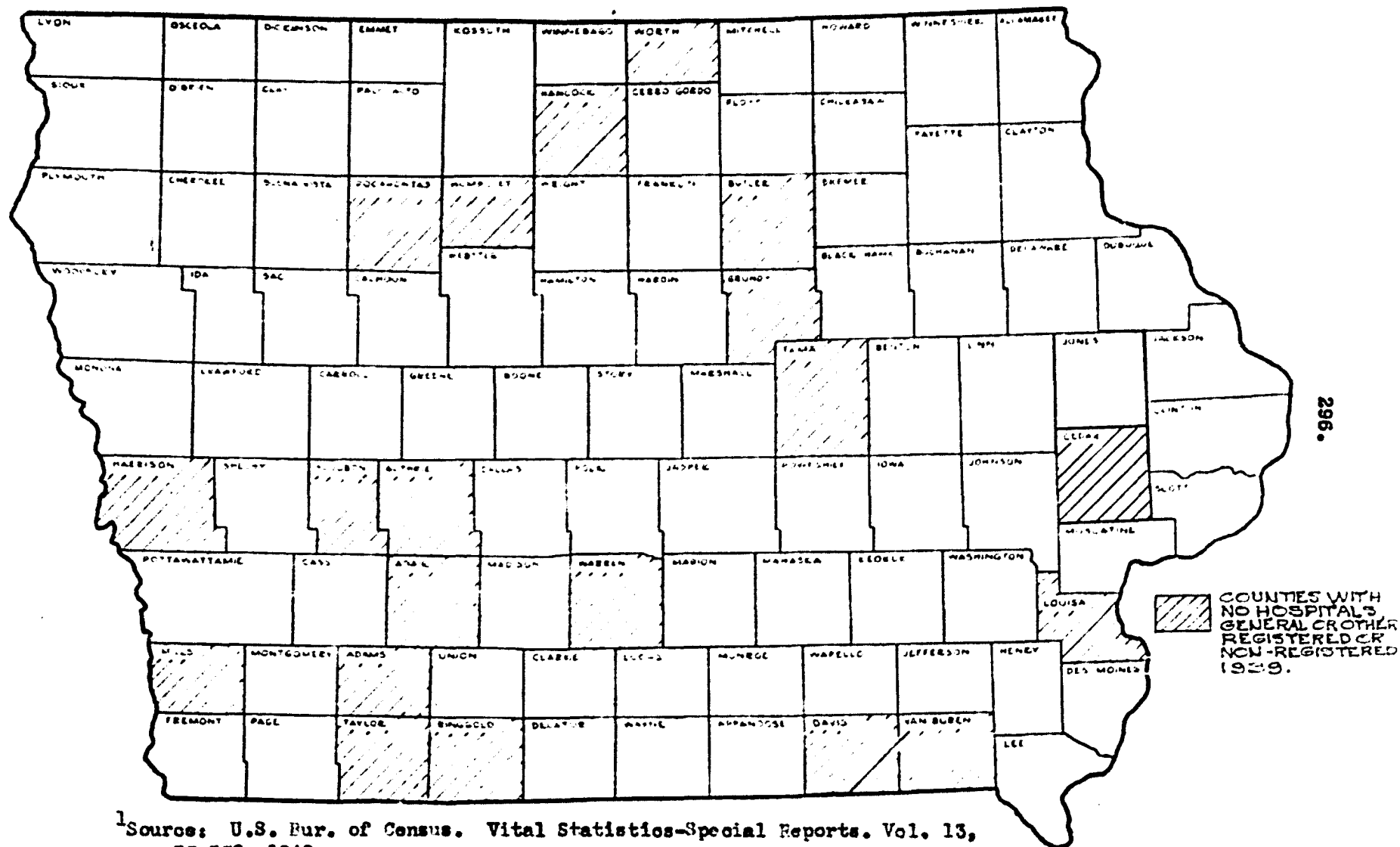
Ownership or control of hospitals in Iowa

The ownership or control of hospitals is important in a study of the supply of medical care and allied services. This involves the questions of who has access to the hospitals, either in the professional capacity of physician or in the capacity of patient. It involves also the question of the maintenance or payment for the institutions. The present discussion is limited in the main to ownership of hospitals. Data are not available on other aspects of the control of hospitals.

Composition of hospital ownership in Iowa. Hospitals owned and controlled either by churches or non-profit associations constitute the greatest proportion of registered hospitals in Iowa. In 1940 these institutions included 44 per cent of all hospitals in Iowa. In the same year 28.7 per cent of Iowa hospitals were proprietary and 27.3 per cent government owned. The largest proportion of government hospitals were owned by the state, 11.3 per cent of those in Iowa. County hospitals comprised 7.3 per cent, city hospitals 6.0 per cent, and federal hospitals 2.7 per cent (See Figure 21 and Table 53).

Change in ownership of hospitals in Iowa from 1930-1940. During the decade from 1930 to 1940 there was a substantial growth in non-profit hospital associations in Iowa, from one in 1930 to 25 in 1940, an increase from 0.5 per cent of Iowa hospitals in 1930 to 16.7 per cent in 1940. Church hospitals decreased slightly in number from 45 to 41 but increased slightly in percentage, from 25.9 in 1930 to 27.3 in 1940. The two fraternal hospitals operating in 1930 had closed by 1940 (See Table 53).

Figure 21. Counties with general or other hospitals, registered or non-registered,
Iowa, 1939¹



¹Source: U.S. Bur. of Census. Vital Statistics-Special Reports. Vol. 13, no. 53:532. 1942.

It is to be noted that the register of the American Medical Association in 1940 includes one hospital in Tama county, at Toledo. (See Fig. 20). See also footnote 1, Figure 21.

Table 53. Distribution of hospitals by ownership and control, Iowa, 1930, 1940

Type of hospital	1930		1940		1943	
	Number ¹	Per cent ²	Number ¹	Per cent ²	Number ¹	Per cent ²
A. Hospitals						
Federal	3	1.7	4	2.7	7	5.0
State	18	10.3	17	11.3	15	10.6
County	13	7.5	11	7.3	8	5.7
City	7	4.0	9	6.0	10	7.1
City and church	2	1.2	0	0.0	0	0.0
Total government	43	24.7	41	27.3	40	28.4
Church	45	25.9	41	27.3	41	29.1
Fraternal	2	1.2	--	--	--	--
Non-profit association	1	0.5	25	16.7	23	16.3
Total non-profit	48	27.6	66	44.0	64	45.4
Individual and partnership	58	33.3	37	24.7	32	22.7
Independent and corporation	25	14.4	6	4.0	5	3.5
Total proprietary	83	47.7	43	28.7	101	71.6
Total non-government	131	75.3	109	72.7	101	71.6
Total of all hospitals	174	100.0	150	100.0	141	100.0

¹Source: American Medical Association. Council of Medical Education and Hospital Service. Hospital service in the United States. J. Amer. Med'l. Assoc. 96:1010-1011, 1931; 116:842-848, 1061-1063, 1941; and 121:1012-1016, 1944.

²Computed from above data.

Table 53. (continued)

Type of hospital	1930		1940		1943	
	Number ¹	Per cent ²	Number ¹	Per cent ²	Number ¹	Per cent ²
B. Hospital beds						
Federal	853	4.7	1,725	8.3	1,728	8.2
State	10,061	55.3	12,021	60.0	12,142	57.5
County	881	4.8	715	3.5	703	3.3
City	164	0.9	304	1.5	319	1.5
City-county	26	.1	--	--	87	.4
Total government	11,985	65.8	14,765	71.3	14,979	70.9
Church	4,013	22.0	3,996	19.2	4,093	19.4
Fraternal	66	.4	--	--	--	--
Non-profit association	--	--	1,208	5.8	1,289	6.1
Industrial	40	.2	--	--	--	--
Total non-profit	4,119	22.6	5,194	25.0	5,382	25.5
Individual and partnership	943	5.2	582	2.8	586	2.8
Independent and corporation	1,170	6.4	193	1.9	181	0.8
Total proprietary	2,113	11.6	775	3.7	767	3.6
Total non-government	6,232	34.2	5,969	28.7	6,149	29.1
Total of all hospitals	18,217	100.0	20,734	100.0	21,128	100.0

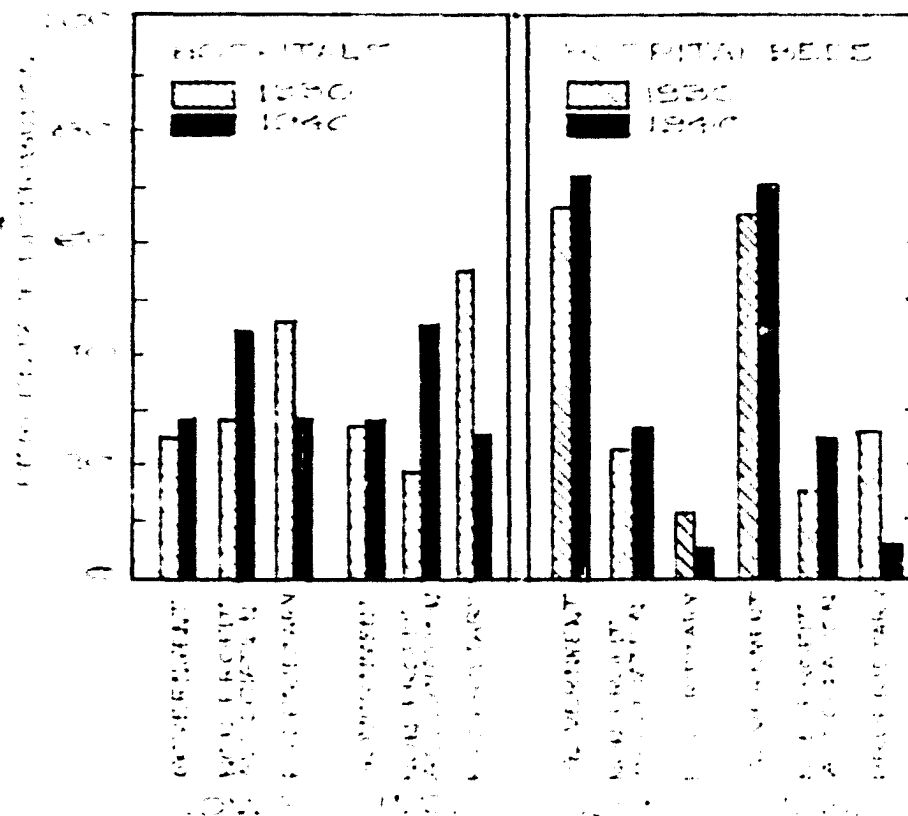
At the same time proprietary hospitals decreased from 47.7 per cent of all Iowa hospitals in 1930 to 28.7 per cent in 1940. The absolute figures were 58 in 1930 and 37 in 1940. The number of government hospitals decreased from 43 to 41 during the decade 1930 to 1940. They constituted 24.7 per cent of Iowa hospitals in 1930 and 27.3 per cent in 1940.

Distribution of hospital beds in Iowa by ownership of hospitals. The distribution of total hospital beds in Iowa presents a different picture. In 1940, 71.3 per cent of the hospital beds in Iowa were in government hospitals, 60 per cent were in state hospitals, 8.3 per cent in federal, and 4.0 in city and county hospitals. The bed capacity of non-profit hospitals was one-quarter of the total for the state, 19.2 per cent in church hospitals and 5.8 per cent in non-profit association hospitals. On the other hand, the bed capacity of proprietary hospitals was only 3.7 per cent of the total for the state.

The greatest relative increase in total hospital bed capacity from 1930 to 1940 took place in government hospitals, particularly in federal and state hospitals. In 1930 the bed capacity of government hospitals comprised 65.8 per cent of the total in Iowa; in 1940, 71.3 per cent. The increase in bed capacity of all government hospitals was 23.1 per cent, although the number of hospitals increased but slightly. The expansion of bed capacity was due to the doubled bed capacity of federal hospitals and a 19.4 per cent increase in bed capacity of state hospitals.¹

¹The increased importance of federal hospitals reflects, of course, the effect of the war. It may be expected that their importance will increase because of construction of hospitals for veterans.

Figure 22. Distribution of hospitals and hospital beds, by ownership and control, Iowa, 1930, 1940¹



500.

¹Source: American Medical Association. Council of Medical Education and Hospital Service. Hospital service in the United States. J. Amer. Med'l. Assoc. 96:1010-1011, 1931; 116:642-648, 1061-1063, 1941.

The bed capacity of hospitals of non-profit organizations constituted 22.6 per cent of the total in 1931 and 25.0 per cent in 1940. The growth was in non-profit hospitals, which had 3.2 per cent of the Iowa hospital bed capacity in 1930 and 5.8 per cent in 1940, whereas church hospitals had 22.0 per cent of the total in 1930 and 19.2 per cent in 1940. The absolute figures for non-profit hospitals jumped from 0 to 1,209 in the decade. Those for church hospitals fell slightly from 4,013 to 3,986.¹

The bed capacity in proprietary hospitals in Iowa dropped in relative importance from 11.6 per cent of the total for the state in 1930 to 3.7 per cent in 1940. The absolute drop was from 2,113 to 776. As indicated earlier, it is likely that some proprietary hospitals were reorganized as hospitals of non-profit associations during the decade. The decrease in number of hospital beds in the former is more or less offset by the increase in the latter.

Relative importance of proprietary U.S. non-profit hospitals in various areas of Iowa. It is of interest to note that proprietary hospitals predominate in small towns and cities whereas non-profit organizations predominate in large cities. In 1939, as reported by the Bureau of the Census, 40.4 per cent of all registered and unregistered hospitals in places in the United States under 2,500 population and 47.5 of those in places of 2,500 to 9,999 were proprietary whereas only 27.9 per cent of those in places of 10,000 to 24,999 and slightly over 21 per cent of those in places over 25,000 were proprietary. On the other hand, only 21.7

¹Calculated from data in Table 53.

per cent of all hospitals in places under 2,500 and 36.0 per cent in places of 2,500 to 9,999 population were non-profit organizations, the percentage increasing with size of community to 61.9 per cent in place of 100,000 or over.¹

The distribution of registered and unregistered general hospitals was similar. In places under 2,500, 49.4 per cent of the general hospitals were proprietary, 25.6 per cent non-profit, and 25.0 per cent government controlled. In places of 2,500 to 10,000, the respective percentages were 48.6, 36.3, and 14.1; in places of 100,000 or over they were 19.4, 66.3, and 14.4. Over four-fifths of the nursing, convalescent, and rest homes in all types of communities were proprietary.²

Implications. If any conclusion as to trend of hospitals may be drawn from these data it is that non-profit hospitals are becoming increasingly important in Iowa and that proprietary hospitals are decreasing. State and federal hospitals provide the major portion of hospital beds and services in Iowa. It must be remembered, however, that for the most part those are for special services, largely mental and nervous diseases and for tuberculosis. A survey of the ownership and control of general hospitals in Iowa would be of value.

Some specific hospital services in Iowa

It is important to bear in mind that number of hospitals, hospital

¹Ibid.

²Ibid.

beds or the ratio of hospital beds to population is not in itself a measure of the adequacy of supply of hospital services. The type of service, diagnostic and therapeutic equipment and personnel are important.

In 1940 in Iowa 87.3 per cent of Iowa registered hospitals reported departments of pathology, in contrast with 57.7 per cent in the United States as a whole. The per cent which reported radiology departments was but slightly higher than the per cent for the United States, 86.0 per cent compared with 84.3 per cent respectively. This was also the case for those reporting equipment for roentgen therapy, 33.3 per cent in Iowa and 31.3 per cent for the nation (See Table 54).

Expenditures for hospital services in Iowa

The status of hospital facilities is indicated to some extent by annual expenditures per capita by registered hospitals, and by annual per capita payments to hospitals. Comparisons between states on this basis, however, are crude because of the fact that the prices of similar services may not be the same in all states.

According to a study by the United States Public Health Service, Iowa hospitals, both registered and non-registered, spent \$2.33 per capita in 1936. This is less than the average for the United States which was \$3.44. It is also less than the median, which was between the \$3.08 spent in Maine and the \$2.96 spent in Missouri. In 27 states the expenditures by hospitals were higher than in Iowa. In Massachusetts the per capita expenditure was \$7.27; in New York, \$6.75. At the other

Table 54. Special departments in registered hospitals, Iowa and United States, 1940¹

Department and classification	Iowa		United States	
	Number ¹	Per cent ²	Number ¹	Per cent ²
Pathology				
Number with	131	87.3	5,538	57.7
Number without	19	12.7	739	31.2
Number not reporting	0	0.0	1,411	11.1
Total	150	100.0	6,291	100.0
Radiology				
Number with	129	86.0	5,303	84.3
Number without	21	14.0	968	15.4
Number not reporting	0		20	1.3
Total	150	100.0	6,291	100.0
Roentgen therapy				
Number with	50	33.3	1,963	31.3
Number without	88	58.7	3,631	57.7
Number not reporting	12	8.0	697	11.0
Total	150	100.0	6,291	100.0

¹Source: American Medical Association. Council of Medical Economics and Hospital Service. Hospital service in the United States. J. Amer. Med'l. Assoc. 116:1060. 1941.

²Calculated from above data.

end of the scale were Arkansas, with \$.72 and Mississippi, with \$.64.¹

Summary and Conclusions

Before an adequate evaluation of the supply of hospital facilities in Iowa can be made more data are needed not only on the number of hospitals operated by medical and osteopathic physicians and others, but also on physical facilities for specific diagnostic and therapeutic services, number and training of specialized personnel. These data, then, need to be related to data concerning the factors affecting the supply and the extent of utilization of available services. Such a survey is a large undertaking which no doubt would need to be sponsored by a large group such as the state or professional group or combination of groups. A State Hospital Survey Committee has been appointed by the Governor for the purpose of making such a survey.

Standards of adequacy for hospitals are of two types: (1) standards of type and quality of organization, physical facilities, and personnel, and (2) standards of quantity of specific equipment or personnel such as number of beds or laboratory technicians per unit of population. Of the former type there are standards established by the American Medical Association and the American College of Surgeons as requisite for registration of hospitals. Of the latter type these are recommendations by various professional associations. It might be remembered that the latter are unofficial.

¹Pennell, Elliott H., Mountin, Joseph W., and Pearson, Kay. Business census of hospitals, 1935. U.S. Public Health Reports, Supplement no. 154. 1939. p. 17.

In Iowa as well as the United States the bed capacity of hospitals fall below the standards most frequently recommended. In Iowa there were in 1940, for example, 2.8 general hospital beds per 1,000 population, far below the 4.5 beds usually recommended. The bed capacity of mental and nervous hospitals was closer to standard but still below it, 4.7 in Iowa as compared with a standard of 5.6. Of total hospital beds there were 8.2 per 1,000 population, whereas the standard is 11.6.

For the United States as a whole the general, mental and nervous and total hospital beds per 1,000 population were respectively 3.6, 4.7 and 9.3. Three states had less than two general hospital beds per 1,000 population; five states had more than five per 1,000 population.

In the nation and in Iowa since 1930 the number of hospitals has decreased but their capacity has increased. Non-profit hospital associations have developed since 1930. Proprietary hospitals have decreased in relative importance. State and federal hospitals have expanded.

The low expenditure of \$2.33 per capita by Iowa hospitals as compared with other states is significant. Iowa is not a poor state. Attention needs to be paid in Iowa to hospital needs and to the cost of meeting them.

Data indicate that in Iowa as well as in other states there is need for development of general hospital facilities in less densely populated areas. The number of general hospital beds per 1,000 population in places under 10,000 is 1.1 in contrast to the ratio of 2.6 in places over

10,000 in population. The lack of hospital facilities in places of less than 10,000 in population brings down the ratio of general hospital beds per 1,000 persons in Iowa to 2.8, far below the standard of 4.5 recommended by the Committee on Costs of Medical Care. The location of hospitals appears to be fairly good. It is their capacity which falls short.

Although final conclusions concerning the need for general hospital facilities in Iowa must await the report of the State Hospital Survey Committee, it seems likely that a great expansion of hospitals in places under 10,000 is needed together with some expansion in a few large hospitals which may serve as diagnostic and therapeutic consultation centers for small hospitals.

Possible changes in the organization of hospitals with respect to the relationship between them are discussed in Part IV. Closer cooperation and perhaps coordination of the work of rural hospitals might improve the amount of quality of rural services relatively quickly.

SUPPLY OF PUBLIC HEALTH SERVICES

Public health service has become increasingly important during the past decade and the concept of public health service has been changing to include much more than in the past. The first section of this chapter gives attention to general considerations of public health service, e.g., its scope and the changed concept of public health.

The next three sections explore the status of public health facilities with special reference to public health work in rural Iowa and details on some types of public health agencies. The fifth section discusses some differences between public health services in rural and urban areas and some of the factors affecting public health service.

No attempt is made to go into detail as to organization and activities of the public health service. Certain areas will be excluded for the most part from the present discussion due to the necessity of limiting the scope of the discussion. Among those excluded from consideration here are (1) research, such as the geological survey of underground water supply in Iowa, the study of stream pollution in Iowa, and the Interstate Malaria Survey, (2) general medical and related services for the medically indigent, (3) care of selected groups such as the mentally ill and the blind, and (4) housing. Those included relate particularly to rural areas.

General Considerations

As a background for exploring public health facilities in rural Iowa attention is given in this section to: (1) general scope of public health services in the United States, (2) changes in types of public health services provided with special reference to Iowa, and (3) standards for measuring the extent of public health services.

General scope of public health services in the United States

Public health service is commonly looked upon as embracing primarily those activities which affect the environment and which require, for effectiveness, action by the group as a whole rather than by the individual family. The hypothesis is that poor health has deep economic and social consequences and that measures for its prevention and for diagnosis and treatment are the concern of the entire community. Health services are considered by many to be valuable economic and social investments.

The concept of public health adopted officially by the American Public Health Association in 1940 is as follows:

1. A health problem becomes one of public concern when, because of its nature and extent, its solution requires organized group action.
2. A community is responsible for those public health procedures that are community-wide in their application (as in the case of sanitary measures) and for those that are intended to conserve the health of individuals who, for any reason, are unable to command health protection at their own expense.
3. Public health services may properly include not only well recognized procedures, such as those of sanitation, vital

statistics, the prevention and control of communicable diseases, and health education of individuals, but also:

- a. Needed services, unless otherwise provided, for individuals afflicted with certain conditions and diseases which have a wide prevalence, a high cost of treatment, and are amenable to organized effort, such as those already found practicable in the treatment under public auspices of mental disease, tuberculosis, cancer, pneumonia, and syphilis.
- b. Such responsibility for other medical care of individuals as may be delegated by legislatively expressed public policy to the health department rather than to some other branch of government.¹

Changes in types of public health services provided with special reference to Iowa

Starting points in public health services. The concept of public health has changed since the inception of the first public health department in Massachusetts in 1797. The starting points for public health work were, historically, (1) protection against certain communicable diseases and (2) control of sanitation. Sigerist states that in the United States during the last half of the nineteenth century public health work consisted mainly of fighting germs. Epidemics such as the spread of cholera in the 1830's, 1840's, and 1890's emphasized the need for social action.² The need for public control of sanitation in crowded urban areas was of

¹American Public Health Association. Desirable minimum functions and organization principles for health activities: an official declaration. Amer. Public Health Assoc. Yearbook 1940/1941:43-50. 1941.

²Sigerist, Henry E. Medicine and human welfare. New Haven, Conn., Yale Univ. Press. 1941. p. 47, 78-79.

course apparent much earlier. The administration of public health work became to a large degree a police function to enforce rules and regulations on what people should or should not do. Quarantine is one example of this type of regulation; licensing and registration of persons in various types of health work or whose work may affect health is another.¹ A secondary function of public health services was education in health and hygiene. Public health services were concerned mainly with the prevention and control of communicable diseases and with public health education. Measures were directed not toward individuals but toward the community as a whole.

Expansion of public health services. Sigerist points out that "sanitation and protection of society against communicable diseases are still a major function of public health but the field has broadened considerably in the last few decades."² During the twenties public health came to include quarantine and isolation of patients with infectious diseases,

¹In the United States public health activities are in general under the jurisdiction of the states and are classified under the "health" and "safety" phases of police power. Insofar as health matters affect or are affected by foreign and interstate trade, such as carriers in such trade, federal employees, members of the armed forces, and war veterans, they come under the jurisdiction of the federal government. In recent years local and public health services have been promoted by the federal government through the use of grants-in-aid.

State boards of health had only advisory powers at first. Their powers were gradually extended to include quarantine, supervision of water supplies, and the making or enforcing of regulations to preserve public health. (Allen, Francis R. Development of the public health movement in the Southeast. Social Forces 22:75. 1943.)

²Sigerist, op. cit., p. 99.

control of morbidic agents such as insect carriers and food poisons, sanitary supervision of milk supply, control of the public water supply and the production and use of biological products for immunization. Later public health work expanded into activities involving detection of disease and its treatment when treatment was imperative for prevention, as in malaria, tuberculosis, and venereal disease. Thus, the scope of activities had widened to include some curative as well as preventive activities. Although curative treatment has been available for the most part when it is necessary in order to prevent the spread of the disease, as in tuberculosis and venereal disease, the work has not been limited entirely to communicable disease. For instance, there are cancer clinics in Iowa which perform some diagnostic and curative treatment.

General changes in public health services in Iowa since 1930. The changing emphasis in public health work in Iowa may be inferred by the names of the divisions of the State Department of Health. In 1930 they included the Administration, Barber, and Cosmetology Divisions and Divisions of Epidemiology and Preventable Disease, Examination and Licensure, Laboratories, Law Enforcement, Nursing Education, Public Health Lecturer, Public Health Nursing, Sanitary Engineering, and Vital Statistics.¹ In 1944, there were still the divisions of Administration, Laboratories, Preventable Diseases, Public Health Nursing, Vital Statistics, Licensure and Registration, Law Enforcement, Cosmetology, Barbering. The others

¹Iowa State Department of Health. Biennial report, 1929/30:4. 1930.

had been subdivided and expanded and additions had been made. The new divisions included: tuberculosis control, maternal and child health, dental hygiene, nutrition, public health engineering and industrial hygiene, local health services, public relations and public health education.¹

The Iowa State Department of Health states:

Two significant trends in the administration of public health have developed during the past few years. First is the trend of public health in larger terms and on a wider front. That is, in former times, Iowa public health activities were simply those of providing quarantine in a few selected contagious diseases. At present, public health is directed at all preventable diseases. Second is the very pronounced community interest in the whole matter of disease prevention. Until recently, we have left the matter of health education to a few voluntary health agencies instead of delegating the matter of health activities to the entire population.²

The State Department of Health has stated also:

There is an old stereotype which still persists in some quarters that safeguarding the public health is chiefly a matter of tacking up a quarantine sign, and the health officer is the person who swings the hammer.

...in step with the steady march of knowledge in medicine, dentistry, nursing, and engineering, public health work has moved far forward.

Prevention of disease and untimely death remains the major objective of workers in public health but methods of procedure have been greatly changed. Among these changes, the most significant from the Iowa health standpoint is the trend toward decentralization, a movement calculated to bring the services of the department of health nearer the community and the individual.³

¹Ibid., 1943/44:4.

²Ibid., 1943/44:122.

³Iowa State Department of Health. For Iowa's health. Iowa Public Health Bulletin. LV (1). 1941. p. 4.

In the 1938 biennial report of the Department of Health¹ appeared this statement:

Local whole-time health service is sponsored by the State Department as the most effective means of furnishing public health protection of an approved and effective quality to all the people of the state. It is a decentralization of the type of service normally expected from the state health department.

With the development of local health units has come greater emphasis on public health services in rural areas. Until the thirties relatively little attention was given to public health services with special reference to rural areas.

The development of hospitals under government control should be included at this point although for the most part this aspect has not been under the jurisdiction of public health agencies per se. There have been state hospitals for specific disabilities, e.g., mental hospitals, and for municipal hospitals or wards for the indigent. Local community hospitals are relatively new. Federal grants-in-aid to these hospitals are still newer, having started during the thirties.

To sum up. Public health services have, then, expanded from fighting a few specific contagious diseases mainly by a program of regulatory activities to include education, preventive services of many types, and some diagnostic and curative services. Services relating specifically to rural areas have been a large development of the past decade, made possible by federal grants. Winslow has pointed out that "in 1890 public health

¹Iowa State Department of Health. Biennial report 1937/38:138. 1938.

was an engineering science; today it is a medical science" and asks "may it not tomorrow be a social science".

Standards for measuring extent of public health service

Standards for measuring the extent and adequacy of public health services in the United States have for some time been given attention by various professional groups, e.g., the American Public Health Association and the National Organization of Public Health Nurses. Standards of this nature also were recommended by the Committee on the Costs of Medical Care. In addition, the Health Organization of the League of Nations has included in its Health Indices some standards for public health services.¹ These standards will be considered briefly in this section.

Standards of appraisal of public health work. For the most part consideration of standards for public health services in the United States have been in the nature of appraisals or ratings of existing methods and accomplishments rather than the establishing of quantitative goals of specific services per unit of population.

The first attempt to appraise health conditions and administrative activity was made around 1875 by the American Public Health Association.² In 1915 appeared a comparative analysis of activities of state health

¹League of Nations. Skeleton standard report on the state of health of the population and the factors influencing it. Bul. Health Organization 8:63-86. 1939.

²Stauman and Falk, op. cit., p. 907. Possibly the first attempt in the direction of appraising public health work was the "Report of the Sanitary Commission of Massachusetts," by Lemuel Shattuck, in 1850.

departments, prepared by Dr. Charles V. Chapin, health officer of Providence, Rhode Island, and published by the American Medical Association.¹ About this time also the Metropolitan Life Insurance Company became interested in the idea of health appraisal.

For nearly 25 years the American Public Health Association has been active in sponsoring local appraisal of public health work. Its Committee on Administrative Practice was established in 1920 with Dr. C. - E. A. Winslow as chairman for the next 15 years. Its field staff has made many studies and appraisals of local and state health work. In 1923 its first appraisal form appeared. The standard of measurement used was an average of public health activities in 83 large cities, as determined from questionnaires. Since that time many revisions have been made and the form has been fairly widely used. The first rural appraisal form of the American Public Health Association was published in 1927.²

For the last 15 years the American Public Health Association aided by the United States Chamber of Commerce has been sponsoring a "National Health Contest". Various localities submit data annually on a prepared form called "Evaluation Schedule". The indices include basic descriptive data or rates. The staff of the American Public Health Association studies and appraises the information and makes suggestions to the participating

¹Ibid.

²Ibid., p. 910. Other appraisal forms in public health work include: (1) "The Community Score Card", prepared by the Federal Council of Citizenship Training, Bureau of Education, 1924 and (2) "Community Measurement Standards of the Wisconsin Conference on Social Work. 1925. (Ibid., p. 912.)

communities. The "Health Practice Indices" published in 1943 presents charts showing the public health practices in 135 communities in 35 states.¹

The first urban contest was held in 1929; the first rural one in 1934. The Commonwealth Fund has given grants to the American Public Health Association for this work. The W.K. Kellogg Foundation has financed much of the expansion to rural areas.² A given community may use the charts as a measuring stick for its activities. These services apply to urban communities more than to rural. Apparently relatively little use has been made of the rural appraisal form.³

It has been pointed out that the appraisal of public health work in the United States has been dominated by the idea of scoring activities and using these scores as guides or stimuli toward the improvement of services and to aid the health officer and health department in planning a program and evaluating the activities of various units of its organization. In the judgment of the Health Organization of the League of Nations "the basic purpose has been less that of scientific investigation of relationship between the state of health, the environment and the work performed than of stimulating competition in fields already selected as full or promise."⁴

¹Ibid., p. 910-912. See also Palmer, George T. Recent developments in the appraisal of public health work. *Public Health Nursing*. 36:22-23. 1944.

²From health honor roll to national reporting area. *Amer. Public Health* 34:1099. 1944.

³In 1943 there were but 48 returns from rural areas in five states. (Ibid., p. 1102).

⁴Stauman and Falk, op. cit., p. 913.

The Health Organization of the League of Nations has since 1935 been developing indices which could be used to measure the performance of health departments and allied organizations as well as the status of health and vitality of the people and the conditions of environment influencing health and vitality. The purpose is not to score or compare localities or countries: rather it is to obtain information¹ on conditions or activities having a bearing on public health which may be pooled and analyzed. The Organization emphasizes that no system of standards or scores can be applied in countries in which conditions and administrative practices differ widely and that if the establishing of standards for comparable areas should be found desirable this should be done only when sufficient experimental data had been accumulated.²

Types of standards useful in measuring the extent of public health services and their value. Standards used in this thesis for measuring the extent of public health services are of three types: (1) type and number of services provided, (2) ratio of specific personnel or equipment to population, e.g., number of public health nurses per unit of population, and (3) expenditure per capita.

Such standards are perforce crude. The number of pathologists per 1,000 population does not indicate, for example, the quality of work. High standards of quality may be assumed if the personnel are certified

¹The Indices of Administrative Activity include 24 items, e.g., sanitary personnel, vital statistics, laboratory services. (Ibid., p. 903, 935).

²Ibid., p. 914.

by their respective professional organization. Again, expenditures per capita do not indicate either quantity or quality of service. Identical per capita cost in two different states may represent quite different supplies of services.

It must be remembered further that reports from public agencies are not comparable among the states. In the first place, the organization of public health activities may not be parallel. For example, a study of the distribution of health services in the structure of state government made by the United States Department of Health, reported in 1941, indicated that for the country as a whole 48 separate agencies were listed as participating in one or another of the health activities included in the study.¹ These were combined into 17 groups. Public health activities in Iowa were distributed among 11 of these 17 groups. In most of the other states the public health activities were distributed among from five to seven types of agencies.²

It is also apparent that the reports of any one state agency might not be comparable to the reports of a similar agency in another state, since the same functions may not be included. Further, the allocation of expenditures for specific types of service is difficult, if not impossible, if one person is carrying on several types of activities, e.g., if the public health nurse is doing some work in maternal health and some in tuberculosis control, or if several agencies are doing similar or over-

¹Mountin and Flook, op. cit., p. 1679.

²Ibid., p. 1681-1687.

lapping work, such as public health education which in Iowa is carried on by the State Department of Health and the State Department of Public Instruction.

Recommended quantity standards for public health work. The methods of appraisal discussed above do not use specific standards recommended for public health work. A few efforts have been made to establish quantity standards as a goal for measuring.

Proposals for size of local health units have varied somewhat. In 1943 the American Public Health Association proposed that there be a local health unit for every 50,000 people, located in an area in which no point is more than 25 to 40 miles from a central headquarters.

The standard of one public health unit per 30,000 population appears in many publications relating to public health work. The establishment of this standard has been attributed to both the United States Public Health Service and the American Public Health Association.¹ However, the origin of this standard is uncertain and the number is part of the evolution in thinking in this subject over a period of years.

Kleinschmidt suggests that the logical health service area is one with more or less definite boundaries indicated by the movement of families toward the center to secure various types of health services and many types of other services. The area will vary with the density of population.

¹Boyd, Edith M. Associate Secretary, Committee on Administrative Practice, Amer. Public Health Assoc. New York. Information on standards for population-physician ratios. Private communication. 1945.

and with the transportation facilities. For the Middle West Kleinschmidt recommends an area of 8 to 15 counties, with approximately 300,000 people in one area. Within this larger area there would be small units furnishing locally required services for a population of approximately 30,000.¹

Various suggestions for ratios of personnel to population have also been proposed. As to the number of public health nurses needed, the American Public Health Association has recommended that within this local health unit there should be a minimum of one public health nurse to 5,000² population. The National Organization of Public Health Nursing has approved the proposals of the American Public Health Association but with the recommendation that a ratio of one public health nurse to 2,000-2,500 population be the standard, in order to supply complete family health services, including nursing care of the sick in their homes.³ Winslow reported that the demonstration in rural public health work sponsored by the Milbank Memorial Fund indicated that a ratio of one nurse to 10,000 population was all that could be hoped for at that time in many rural areas.⁴ The Committee on Costs of Medical Care recommended one public health nurse per 4,000 population.⁵

¹Kleinschmidt, L.S. How can better rural health be developed? Rural Sociol. 9:24. 1944.

²American Public Health Association, Committee on Administrative Practice, Progress report, p. 406.

³Statement by Governing Board of National Organization for Public Health Nursing, 1944. (Original not seen. Cited in Nursing Associations endorse health insurance. Med'l Assoc. 4:249, 1944.)

⁴Winslow, C. - E.A. Health on the farm and in the village. New York, The Macmillan Co. 1931. p. 204.

⁵Lee and Jones, op. cit., p. 93-94.

Concerning the standard for sanitary engineers, the American Public Health Association recommends two full time persons in the field of environmental sanitation for each unit of 50,000 population, one of whom should have professional qualifications in this field, preferably those of a public health or sanitary engineer.¹

Standards for other workers in public health were suggested by the Committee on the Cost of Medical Care in 1933. These proposals are based on the requirements for an adequate program of community health preservations set up by the Committee on Administrative Practice of the American Public Health Association. They include the following personnel per 100,000 population:²

- 1 health officer
- 2 physicians
- 1 epidemiologist
- 1 bacteriologist
- 1 chemist
- 1 sanitary engineer
- 8 inspectors (1 per 12,500 population)
- 1 statistician
- 1 educational director
- 7 clerks (1 per 14,286 population)
- 1 technician
- 1 director of nursing
- 3 supervisors (1 per 33,000 population)
- 25 public health nurses (1 per 4,000 population)
- 2 medical social workers (1 per 50,000 population)

¹American Public Health Association, Committee on Administrative Practice, Progress report, op. cit., p. 406.

²Lee and Jones, op. cit., p. 93-94.

Classified according to type of service, the estimates of the Committee on Cost of Medical Care include for each 100,000 population:¹

General supervision: one medical health officer

Vital Statistics: one statistician, two clerks, etc.

Communicable disease control:

Venereal disease control: one physician, one medical social worker, one clerk

Tuberculosis: one physician, one clerk

Epidemic diseases: one epidemiologist, one inspector, one clerk

Food and milk control: one chief inspector, four assistants

Sanitation: one sanitary engineer, three inspectors

School health supervisors (under individual preventive services)

Public health nurses: one director, three supervisors, 25 nurses

Popular health instruction: one director, one clerk

Laboratory service: one bacteriologist, one chemist, one technician, one clerk

Sources of information concerning the extent of public health service

Major sources of information concerning the extent of public health service with special reference to rural Iowa include reports of the Iowa State Department of Health and the United States Public Health Service. There have been a few studies of other states made by Agricultural Experiment Stations, such as the survey of rural health facilities of Lewis County, Missouri, in 1939.² An early study of rural public health services on a larger scale was the one made in the late twenties by a subcommittee of the Committee on Administrative Practice of the American Public Health Association with financial support by the Commonwealth Fund.³

¹Ibid., p. 131.

²Almack, Ronald B., op. cit.

³Freeman, Allan W. A study of rural public health service. New York, The Commonwealth Fund. 1933. p. xxiv.

It covered 44 counties in 28 states and two provinces in Canada.¹

In the present discussion the sources of information used are in the main reports and publications of the Iowa State Department of Health and the United States Public Health Service.

A survey of public health facilities in Iowa has been undertaken for the latter part of 1945 and early 1946 by the Iowa Federation of Women's Clubs in cooperation with the Iowa State Department of Health. Questionnaires have been sent to each club of the Federation. Data will be tabulated and analyzed by the two state groups and later sent to the United States Department of Health.

The clubs represent one-half of the municipalities in Iowa. If clubs in all of these places return questionnaires there will be additional information on health services in 46 per cent of the rural and 92 per cent of the urban municipalities in Iowa. Similar surveys are being conducted by the Federation of Women's Clubs in other states. National data will be compiled from these by the United States Public Health Service.²

¹Related studies include reviews and evaluation of demonstration projects such as the study by C.- E.A. Winslow of the Cattaraugus County Health Demonstration sponsored by the Milbank Memorial Fund during the twenties. (Winslow, C. - E.A., Health on the farm and in the village). A later study by the Committee on Local Health Units of the American Public Health Association is soon to be released, according to a letter from the secretary of the Committee of Administrative Practice of the American Public Health Association (Mar. 27, 1945).

²Swartzendruber, Mrs. George Y., Chairman of State Public Health Committee, Iowa Federation of Women's Clubs, Cedar Rapids, Iowa. Information on public health survey being conducted by Iowa Federation of Women's Clubs. Conference and private communication. 1945.

Status of Public Health Services

As indicated earlier the extent of public health service frequently is expressed in terms of variety of specific types of services, in terms of quantity of specific facilities per unit of population, or in terms of expenditure per capita. In this section are presented some data on the variety of activities and status of local and state public health staffs and expenditures in Iowa. The Iowa State Department of Health is, of course, the major state agency to be considered but other state agencies must be included as well.

Variety of specific activities carried on by individual states

The United States Public Health Service, in surveying state health services in 1940 among all state agencies which use state and federal funds, checked 38 specific health activities among the states.¹ No state performed all of these. As indicated in Table 55, Texas and Wisconsin stood at the top of the list, having some work in 36 of them, Nebraska with 23 activities and Arizona and South Dakota with 22 each, were at the bottom. The median number of activities was 34. Twelve states, including Iowa, were performing 34 activities. This number in itself does not indicate the level of health services. It does not indicate the type of

¹See Table 56, p. 328.

Table 55. Number of specific health activities carried on by states, 1940¹

Number of states	Number of activities ²	Names of states
0	38	
0	37	
2	36	Texas, Wisconsin
0	35	
5	34	Alabama, California, Louisiana, Massachusetts, Minnesota
5	33	Indiana, Michigan, New Jersey, New York, Ohio
12	32	Colorado, District of Columbia, Georgia, Illinois, Iowa, Kansas, Mississippi, New Hampshire, Oklahoma, Oregon, Pennsylvania, Virginia
5	31	Connecticut, Delaware, Florida, Maryland, South Carolina
2	30	Rhode Island, Washington
3	29	Kentucky, Maine, North Carolina
4	28	Missouri, Montana, New Mexico, North Dakota
3	27	Arkansas, Nevada, Vermont
2	26	West Virginia, Wyoming
3	25	Idaho, Tennessee, Utah
2	24	Arizona, South Dakota
1	23	Nebraska
0	22	

¹Calculated from Mountin, Joseph W., and Flock, Evelyn. Distribution of health services in the structure of state government. Ch. I. The composite pattern of state health services. U.S. Public Health Reports 56:1681. 1942.

²The activities are listed in Table 56.

work carried, either as to quantity or quality. However, it does indicate the increased spread of health services and the development beyond regulatory into preventive and in some cases curative measures. The activities carried on in Iowa and the state agencies responsible for them are indicated in Table 56.

General status of full-time public health service units in the United States

Before examining the status of staffs and expenditures for public health work in Iowa it would be well to observe the extent of organization of full-time health service units in the nation as a whole.

In July, 1942, according to a survey reported by the American Public Health Association "there were 41,052,600 persons (31.2 per cent) in 1,687 counties in 41 states for whom no full-time health service was provided, and 90,616,700 persons (68.8 per cent) in 1,438 counties in 46 states, the District of Columbia, and 77 cities, for whom full-time health service was provided by a local, city or county, city-county, multi-county, district, or state health department."¹

The 68.8 per cent of the population served by full-time health units were as follows: 47.1 per cent in 890 counties in 37 states were served by local government in units of one or more counties or by individual cities within these counties; 12.5 per cent in 493 counties in 17 states were served by full-time service which was provided by state government in single or multiple county units; and 9.2 per cent were served through

¹American Public Health Association, Committee on Administrative Practice, Progress report, op. cit., p. 406.

Table 56. State agencies responsible for specific health activities, Iowa, 1940¹

Activity	Dept. of Health	Dept. of Welfare	Social Security	Dept. of Agriculture	Dept. of Labor	Dept. of Education	Special Board	Board of Control	State University or College	Dept. of Mines	Independent Licensing Board	Dept. of Public Safety
Vital statistics	x								x			
Acute communicable disease control	x								x			
Tuberculosis control	x								x			
Tuberculosis hospital								x				
Veneral disease control	x											
Maternity hygiene	x	x							x			
Infant and pre-school hygiene	x	x										
School health service	x					x			x			
Industrial hygiene	x				x							
Workingmen's compensation							x					
Sanitation of water supply	x											
Sanitation of sewage disposal facilities	x											
Housing control	x											
Plumbing control	x											
Smoke fumes and odor control												
Rodent control												
Garbage collection and disposal	x											
Shellfish sanitation												
Milk sanitation	x			x								
Malaria control							x					
Pest, mosquito control												
Supervision of hotels, restaurants, and other facilities for the traveling public	x			x								

¹Mountin, Joseph W. and Hook, Evelyn. Distribution of health services in structure of state government. Ch. 1. The composite pattern of state health services. U.S. Public Health Reports 56:1673. 1942.

Table 56. (continued)

Activity	Dept. of Health	Dept. of Welfare Social Security	Dept. of Agriculture	Dept. of Labor	Dept. of Education	Special Board	Board of Control	State University or College	Dept. of Mines	Independent Licens- ing Board	Dept. of Public Safety
Food and drug control			x							x	
Mental hygiene (prevention)		x			x	x					
Mental hospitals						x					
Care of crippled children								x			x
Cancer control	x										
Prevention and control of blindness	x	x			x	x					
Vocational rehabilitation						x					
Pneumonia control								x			
Hookworm control											
Health services for migratory workers											
General medical care of the needy		x									
Dental services	x							x			
Laboratory services	x		x								
Health education	x			x	x			x			
Research activities											
Licensure of professions and agencies significant to public health	x	x	x								

city governments in 77 cities in areas where full-time service was not provided by either county or state government.

In 1942 there were seven states in which all counties had full-time health service under either local or state direction.¹ There were nine without full-time health services for any county unit and four with only one county unit.²

General status of full-time health service units in Iowa

In Iowa, four³ counties have full-time public health units. All counties of Iowa are included in 10 district health units (See Table 23). All of these are aided by grants made possible by federal action. Jurisdiction over public health work, however, lies with local boards of health which were established by law in every township and municipality where state health activities were first established in 1880. There are some 2500 local health jurisdictions in Iowa at the present time.⁴

These Iowa township and municipal boards of health and county and district health units are discussed more fully in the sections which follow.

¹Ibid., p. 407. These included Alabama, Delaware, Maryland, New Mexico, New York, Utah, and Wisconsin.

²Ibid. Those without any county health units include Connecticut, Maine, Nebraska, Nevada, New Hampshire, New Jersey, Pennsylvania, and Vermont. Those with but one include South Dakota, Indiana, Massachusetts, and Wyoming. It is to be noted that for the most part those with no county units are either very small compact states or else very large states with scattered population.

³Des Moines, Polk, Washington, and Woodbury.

⁴Iowa State Department of Health. Biennial report, 1943/44:122. 1944.

Status of staff of public health service in Iowa

Public health agencies will be considered here as follows: (1) local health departments and (2) state health agencies. As in the case of the supply of physicians and hospitals, 1940 is used insofar as possible as a focus of attention in the discussion of status of public health service in Iowa in order to eliminate the temporary effect of the war. However, in some parts of the discussion 1936 is used for local health departments since data for later years are not readily available.

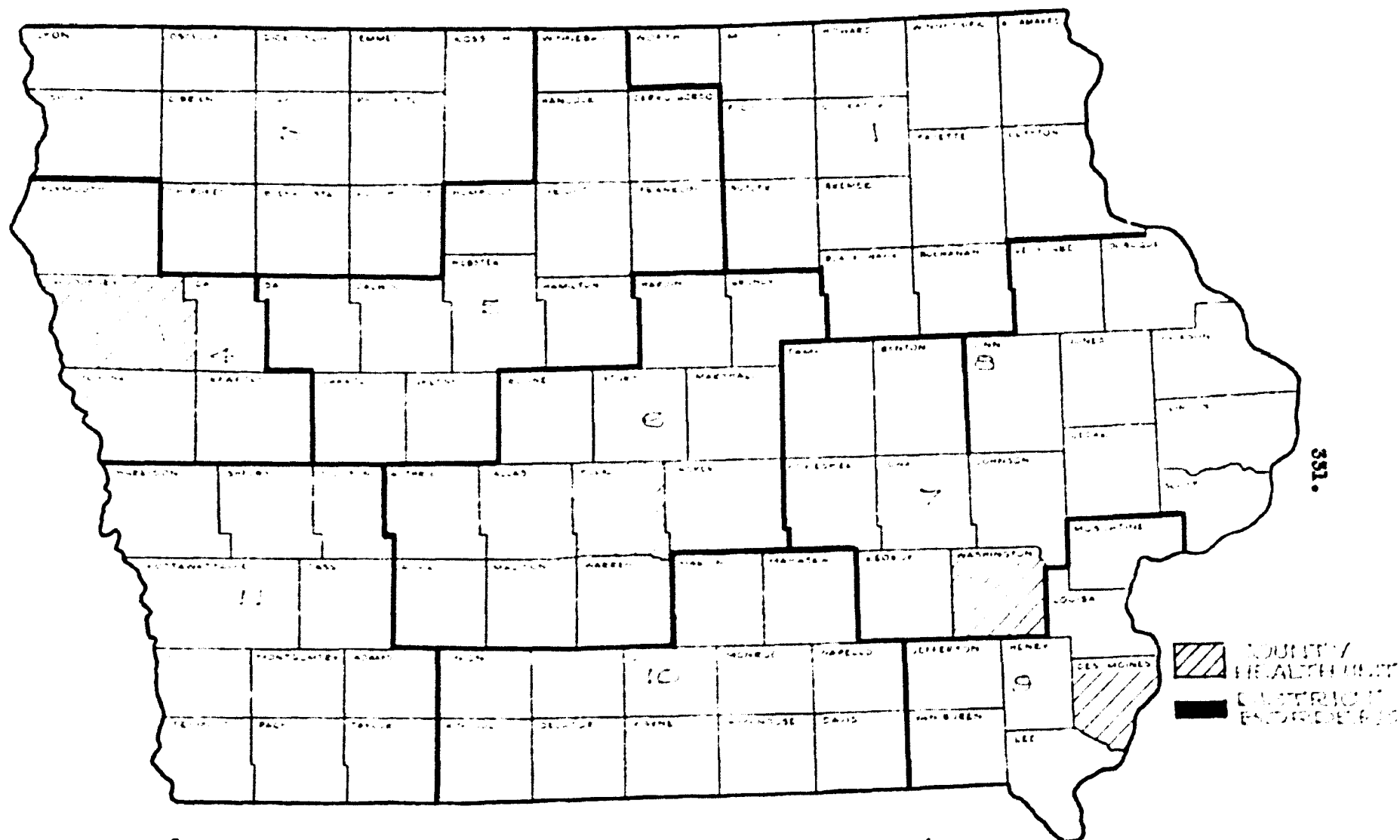
Local departments of health. Most of the authority for public health service in Iowa is local rather than state. Each city, town, and township is required by law to have (1) a health officer who is a physician or person specially trained in public hygiene and sanitation and (2) a local board composed of persons appointed by the governing officials, such as the town council or the township trustees.¹ The local board of health is "empowered and bound to obey and enforce the rules and orders of the State Department of Health, to report its proceedings to the State Department, to establish, maintain and terminate quarantine, to make rules necessary for the enforcement of laws for which it is responsible, to regulate disposal of the dead and to regulate compensation to those employed by it."²

In some sections of Iowa there are well organized and administered

¹Iowa. Code of Iowa. 1939. Title VII. Ch. 107. p. 416, 417. 1939.

²Iowa State Planning Board, op. cit., p. 11, 12. See also Iowa, Code of Iowa, op. cit.

Figure 23. County and district health units, Iowa, 1942¹



¹Source: Iowa State Department of Health. Biennial Report 1941/42:43. 1942.

health activities. In others there are none, despite the legal requirement. In its survey of 90 counties in Iowa in 1936-37 the Iowa State Planning Board found that in many towns and townships this responsibility had been largely neglected.¹ In many cases the members of township boards of trustees and city councils acted as health boards, doing little more than fulfilling the legal requirement of meeting twice yearly. In many cases not even this was done. Ninety-five per cent of the townships and 42 per cent of the municipalities in the 90 counties reported boards of health. However, only 45 per cent of the townships and 53 per cent of the municipalities had boards which met at least twice a year as required by law.²

Despite mandatory legislation for the appointment of health officers less than a third of the 1600 township boards of health in Iowa had appointed health officers in 1944.³ The Iowa State Planning Board found that only 58 per cent of the townships and 78.2 per cent of the municipalities in 90 counties⁴ appointed health officers in 1936. Only 26.8 per cent of the townships and 23.4 per cent of the municipalities had health officers who received any compensation, however small.⁵

¹Ibid., p. vi.

²Ibid., p. 15, 50, 54.

³Iowa State Department of Health. Biennial report, 1943/44:122. 1944.

⁴Iowa State Planning Board, op. cit., p. 21, 54.

⁵Calculated from data, Ibid., p. 19-20, 55-56.

The State Planning Board found that health programs tended to improve in direct proportion to the size of the locality. The average size of locality without health officers in the 90 counties surveyed was 286, contrasted to the average size of 1,975 in those appointing health officers.¹ Altogether 185 of the 847 municipalities or 20.5 per cent had no health officers.² Of the 814 towns of less than 5,000 population only six employed full-time health workers other than health officers. These towns included 3.5 per cent of the population in this size group. In places between 5,000 and 10,000 in population, 15 per cent of the population was being served by full-time public health workers. In places over 10,000 in population, 89.2 per cent of the population was being served³ (See Table 57).

There are relatively few health workers other than health officers in most Iowa communities. The survey of the Iowa State Planning Board showed that in 1936 only six full-time public health workers other than health officers were employed by towns of under 5,000 population in Iowa. Of these, four were sanitary inspectors, one a milk inspector, and one a public health nurse. Of the 29 part-time workers in places of this size, eight were sanitary inspectors, 14 milk inspectors, five laboratory workers, one a clerk. Altogether there were only 35 full-time and part-time health

¹Ibid., p. 21.

²Ibid., p. 19. Percentage calculated in the 90 counties.

³Ibid., p. 26.

Table 57. Boards of health and health officers in municipalities in 90 counties of Iowa, 1936

Item	: Township :	: Municipalities :					: Total :
		: Under : 5,000 :	: 5,000- : Over :		: Total :		
			: 5,000 :	: 10,000 :		: 10,000 :	
Number	: 1,454	1: 814 ⁴	13 ⁴	20 ⁴	847	3	
Population	: 936,232	1: 580,000 ⁴	89,000 ⁴	693,000 ⁴	1,362,666	3	
Boards of health	:	:					
Number having	: 1,381	1: 1:			781	3	
Number not having	: 73	1: 1:			66	3	
Percentage having	: 95.0 ²	1: 95.0 ²			92.2 ²	2	
Percentage not having	: 5.0 ²	1: 5.0 ²					
Population served	: 891,551	1: 1:			1,325,954	3	
Population not served	: 44,681	1: 1:			36,712	3	
Percentage served	: 95.2 ²	1: 95.2 ²			97.3 ²	2	
Percentage not served	: 4.8 ²	1: 4.8 ²			2.7 ²	2	
Meeting less number than:	:	:					
twice a year	: 797	1: 1:			397	3	
Percentage	:	:		15 ⁷			
Health officers	:	:					
Number having	: 848	6: 630 ⁷			662	5	
Number not having	: 606	6: 606			185	5	
Percentage having	: 88.3 ²	6: 88.3 ²			78.2		
Percentage not having	: 41.7 ²	6: 41.7 ²			21.8		
Population served	: 562,697	6: 6:			1,309,639	5	
Population not served	: 373,535	6: 373,535			53,027	5	
Percentage served	: 80.1 ²	6: 80.1 ²			96.1 ²	2	
Percentage not served	: 39.9 ²	6: 39.9 ²			3.9 ²	2	

¹Source: Iowa State Planning Board. Public health resource in Iowa.

²Des Moines, The Board. 1938. p. 50.

³Calculated from above data.

⁴Ibid., p. 15.

⁵Ibid., p. 24. (Population in round figures)

⁶Ibid., p. 19.

⁷Ibid., p. 52.

⁸Ibid., p. 23. 85% met at least twice.

workers in the 314 places under 5,000 in population.¹

In the same year, places from 5,000 to 10,000 had proportionately fewer health workers to their population than did those under 5,000. There were two full-time workers, a milk inspector and a public health nurse, and six part-time workers, including three milk inspectors, one public health nurse, and two sanitary inspectors.²

Larger cities had the greatest number of health workers in 1930 in proportion to population. There were 77 full-time workers, of whom approximately one-third were public health nurses, one-fifth milk inspectors, and one-fourth sanitary inspectors. There were 125 part-time workers. The type of service they represent is shown in Table 58.

In toto, Iowa municipalities provided in 1936 one health worker other than health officer per 16,031 town residents. No such workers were reported by any township.³

These data indicate need for local public health departments and for expansion in staff, not only expansion in number of health officers but also technicians and inspectors for specific health duties, e.g., sanitation inspection. The ratio of health workers to units of population in Iowa falls below recommended standards of the American Public Health Association: one public health nurse per 5,000 population, and two persons in the field of environmental sanitation per 50,000 population, one of whom has professional qualifications for the work, and one clerk per 15,000 population.

¹Ibid., p. 24.

²Ibid., p. 24.

³Ibid., p. 47.

Table 58. Health workers other than health officers employed by localities in 90 counties in Iowa, 1936

Item	: Township :	Municipalities				: Total
		Under : 5,000	: 5,000- : 10,000	: Over : 10,000	:	
		:	:	:	:	
Number	: 1,454 ¹ :	814 ³	13 ²	20 ²	847 ²	
Population	: 936,232 ¹ :	580,000 ³	89,000	693,000	1,362,666 ²	
Type of health worker	:	:	:	:	:	
Full time public	:	:	:	:	:	
health nurse	: 0 :	1	1	23	25	
Milk inspector	: 0 :	1	1	13	15	
Sanitary inspector	: 0 :	4	0	15	19	
Meat inspector	: 0 :	0	0	3	3	
Laboratory worker	: 0 :	0	0	5	5	
Clerk	: 0 :	0	0	5	5	
Other	: 0 :	0	0	5	5	
Total	: 0 :	6	2	69	77	
Per cent of population served ⁵	:	:	:	:	:	
	: 0 :	3.5	15.3	89.2	47.9	
Part time public	:	:	:	:	:	
health nurse	: 0 :	1	1	0	2	
Milk inspector	: 0 :	14	3	8	25	
Sanitary inspector	: 0 :	8	2	2	12	
Meat inspector	: 0 :	0	0	0	0	
Laboratory worker	: 0 :	5	0	1	6	
Clerk	: 0 :	1	0	1	2	
Other	: 0 :	0	0	1	1	
Total	: 0 :	29	6	13	48	
Per cent of pop- ulation served ⁵	:	:	:	:	:	
	: 0 :	7.5	35.9	32.2	21.9	
Total	: 0 :	35	8	82	125	

¹Source: Iowa State Planning Board. Public health resources in Iowa. Des Moines, The Board. 1938. p. 50.

²Calculated from data ibid., p. 19, 20.

³Calculated from data ibid., p. 28.

⁴Ibid., p. 24.

⁵Ibid., p. 25.

State agencies concerned with public health. Since the State Department of Health has major jurisdiction over public health work in Iowa and since consequently most of the persons employed by the state for health services are in that agency, more attention is given here to the status of staff in the State Department of Health than to the status of other state agencies.¹

Classified by professions, the full-time administrative and field personnel of all state agencies in Iowa for health activities, as reported by the United States Public Health Service, was as follows in 1940:²

Physicians	18
Nurses	50
Engineers	18
Inspectors	44
Technicians	20
Dentists	1
Administrative not covered by other classification	11
Clerical and records personnel	84
Laborers	4
Others	<u>38</u>
	288

The 288 full-time administrative and field workers employed for health work by state agencies in Iowa in 1940 were distributed among various

¹The State Department of Social Welfare has charge of general medical care for the needy. It supervises and provides consultation service to local organizations, distributes grants-in-aid for general home and office care through relief funds to local units, and operates direct service programs through financing home and office care for selected groups, such as the aged and the blind. The State University provides general clinic service for ambulatory patients, some general hospital care for the needy, including free ambulance service.

Services for crippled children are under the joint jurisdiction of the Department of Public Instruction and the State University. The former has charge of the educational program for prevention and treatment and in charge of grants in aid for convalescent home care. The latter has charge of the direct service program, including diagnostic clinic, treatment clinic, case finding and follow-up nursing service; hospital and post-hospital care.

²Mountin and Flock, op. cit., 56:1697.

agencies as follows:

Department of Health	168
Department of Social Welfare	11
Board of Control of State	
Institutions	3
Department of Labor	3
Department of Agriculture	56
All other state agencies	<u>47</u>
	288

The special commissions, Board of Control and State University had only part-time or institutional personnel.¹

In 1940 there were rural public health nursing services in 66 counties, of which two were city-county health services, and no public health nursing services of any kind in 33 counties. There were 36 public health nurses employed by 47 counties. In contrast to rural areas all Iowa cities with a population of 10,000 or over had public health nursing services in 1940. Of the 244 public health nurses employed full time in Iowa, 74 were employed by rural agencies. Including part-time public health nurses employed in schools, colleges, itinerant nursing services, there were 283 nurses. The total number of public health nurses in Iowa in 1942 was 344, of which 93 were in official state, district and county health agencies. In non-official agencies there were 70 nurses in 19 agencies, 87 school nurses in 50 agencies, 95 industrial nurses in 32 industries. In addition there were 27 itinerant and part-time nurses giving services in schools and colleges.

¹Ibid., p. 1695.

In addition to the 56 county public health nurses in 47 counties in Iowa there were, in July 1942, ten advisory nurses on the staff at the State Department of Health, thus making supervisory service available in each of the 10 public health districts. In 1940 there had been only four advisory nurses.¹

There was also a public health engineer for each district. The four county health units also had county public health engineers, two of them having assistant public health engineers as well.

Each of the ten district health units and four county health units also has a full-time medical director.²

Expenditures for public health services

In obtaining a picture of public health services by means of a study of expenditures it is well to include not only total and per capita expenditures but also the distribution of funds among various agencies and the allocation of funds among various types of services. In this section attention will be turned to (1) general picture of total funds from various sources used for public health services in Iowa, (2) per capita expenditures for public health services by local communities, (3) total expenditures of state agencies which control funds for public health services and (4) per capita expenditures for various types of services by state agencies.

¹Iowa State Department of Health. Biennial Report 1941/42:73. 1942.

²Special clinics are discussed later in the chapter.

General picture of total funds from various sources used for State-administered public health service in Iowa and the United States as a whole.

In Iowa much less was appropriated by the state and more by local governments than in the United States as a whole. As indicated in Table 59, state appropriations constituted about half of the funds administered by the state for public health service in 1940, in contrast to four-fifths for the nation as a whole. On the other hand nearly a third of the funds was appropriated by local bodies, approximately eight times the four per cent in the United States as a whole. These figures may indicate merely that local communities in Iowa are better able to provide health services than are local bodies in some other states. The actual amounts are not being compared here.

The percentage of total funds received from federal sources was about the same in Iowa as the average for the United States. In Iowa about seven per cent of the funds administered by state agencies for public health service were from federal appropriations. About four per cent came from the United States Public Health Service under Title VI of the Social Security Act, two per cent from the Children's Bureau of the Department of Labor under Title V of the same act, and less than one per cent from the United States Public Health Service under the Venereal Disease Control Act of 1938. For the United States as a whole an average of less than seven per cent of the funds for public health service was derived from federal funds of which about three per cent came from Title VI, two per cent from Title V, and one per cent from Venereal Disease Control funds. There were in addition funds from such sources as special fees, licenses, and donations by voluntary

Table 59. Total and per capita expenditures for health activities and their sources, Iowa and United States, 1940¹

Description	: : United States : :	: : Iowa : :
Dollars		
Expenditures		
Total	\$285,715,800	\$4,780,300
Per capita	1.90	1.88
Percentage distribution		
Sources:		
State	81.4	49.6
Local	3.9	31.5
Federal	6.7	
U.S. Public Health Service	3.2	
Title VI, Social Security Act		3.8
U.S. Public Health Service, V	1.0	0.9
Venereal Disease Control Act		
U.S. Children's Bureau,	2.5	2.4
Title V, Social Security Act		
Other	<u>8.0</u>	<u>11.8</u>
	100.0	100.0

¹Source: Mountin, Joseph W. and Flook, Evelyn. Distribution of health services in the structure of state government. Ch. I. The pattern of state health services. U.S. Public Health Reports 58:1099. 1942.

organizations. These amount to nearly 12 per cent of the total funds in Iowa and eight per cent in the United States.

Per capita expenditures for public health services by local communities.

As reflected by local expenditures for public health services, farm people in 90 counties surveyed by the Iowa State Planning Board in 1936-1937 received only 2.63 per cent as much as did urban people. The per capita expenditure for public health purposes in the 1454 townships surveyed was 0.33 cents in contrast to the 12.54 cents spent per capita by 847 municipalities.¹

Indirectly the salaries paid to health officers may indicate to some extent the status of public health service. In rural areas health officers received almost no reimbursement for their services. Health officers in townships in the 90 counties surveyed were paid an average of \$0.96 annually, in contrast to the average \$42.24 received annually by health officers in municipalities in the same counties.² Of the 1454 townships 41.7 per cent had no health officers, 29.8 per cent had health officers but gave no reimbursement and 28.5 per cent gave some reimbursement. The average reimbursement among the latter group was \$2.43 per year.³ Among the 814 towns under 5,000 population, nearly a fourth had no health officers, over half had officers but paid no salaries, and another fourth paid salaries; of the 208, 90 paid less than \$20, 71 paid between \$20 and \$50 and only 45 paid more than \$50 annually.⁴

¹Iowa State Planning Board, op. cit., p. 28, 32, 54, 55.

²Ibid., p. 54.

³Calculated from data, Ibid., p. 55-56.

⁴Ibid., p. 23.

The Iowa State Planning Board has published a figure showing the relative number of persons in Iowa municipalities for whom various per capita expenditures for public health services were made by local governments in 1936 and showing their distribution by size of community (See Figure 24). Farm families were not included. Approximately 85 per cent of the communities in which there were no expenditures for public health services were less than 2,500 in population and approximately 50 per cent of those paying less than four cents per capita were of this size, whereas nearly all the communities paying over 18 cents per capita were over 10,000 in population. Roughly, the per capita expenditure varied with the size of community.

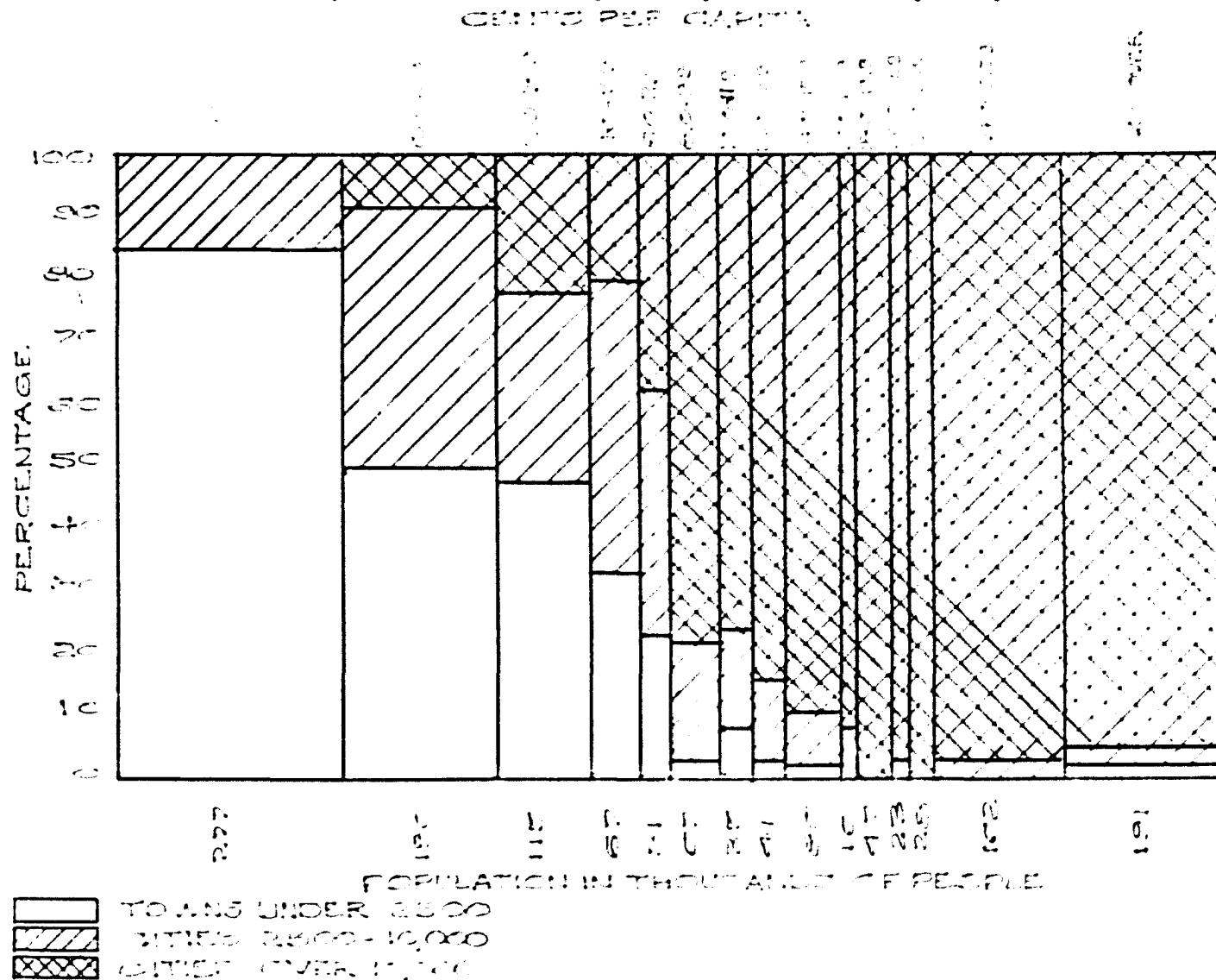
Of the salaries and expenses of public health personnel other than health officers in municipalities in 90 counties in Iowa in 1936, 91 per cent was paid by cities over 10,000 in population, which included over half of the Iowa population residing in municipalities. The distribution of the total spent for these services was as follows: 30.2 per cent for public health nurses, 21.5 per cent for milk inspectors, 20.2 per cent for sanitary inspectors, 11 per cent for meat inspectors, five per cent for clerks, and the remaining nine per cent for other health workers¹ (See Table 58).

The State Planning Board pointed out in 1938 that:

The average small town cannot afford to hire full time health workers of these special types, nor could they be found in sufficient numbers even if the necessary expenditures seemed prudent. Qualified part-time workers are difficult to find and

¹Ibid., p. 26-27.

Figure 24. Distribution of population by per capita public health expenditures of municipalities, in 90 counties, Iowa, 1936



¹Source: Iowa State Planning Board. Public Health resources in Iowa. Des Moines, The Board. 1938. p. 31.

are handicapped by the fact that they can give only occasional attention to the problems of the community. Yet there is considerable evidence that health problems of the small town, usually without the sanitary facilities available in larger places, are as great or greater than those of the cities, which can afford to hire trained technicians to safeguard their citizens.¹

It should be pointed out that in many respects this need applies to farm areas as well as to small towns.

Percentage distribution of expenditures of state agencies which control funds for public health services. In its 1940 survey of state health service, the United States Public Health Service attempted to obtain the approximate expenditures for public health from state funds and from federal funds administered by states. It was impossible to obtain complete and accurate figures because of the fact that many agencies which carried on health work subordinately to or coordinately with other activities irrelevant to the study did not keep their records in such a way that the figures for health work could be exactly separated from the expenditures for other work. For this reason, the figures obtained are usable as indices rather than as absolute amounts.

Although state health departments have been established particularly for health work, they spend less than one-fifth of the total amount spent in health activities by all state agencies.² The reason for this is largely that state hospitals, for which major expenditures are made, are under the jurisdiction of special boards of control. This is the case in Iowa.

¹Ibid., p. 27.

²Ibid., p. 19.

It will be noted in Table 60 that the Iowa State Department of Health spends a much smaller proportion of the total amount for health services administered by state agencies than does the country as a whole, 10 per cent for Iowa compared to 18.5 per cent for United States. The Board of Control spends much more proportionately than is true for the whole country, 47.9 per cent compared to 16.0 per cent. When the percentage for special boards or commissions is added to the percentages for boards of control, the figures are 48.3 per cent for Iowa compared to 31 per cent for the United States. When the percentages for independent state hospitals and laboratories also are included, the figures are 48.3 per cent for the state compared to 36.4 per cent for the nation. The proportion of expenditures controlled by the state university is much higher than for the country as a whole, 34.0 per cent contrasted to 3.2 per cent. These figures added to the ones last quoted bring the proportion spent by special boards, board of control, independent hospitals and laboratories, and state universities to 82.3 per cent in Iowa as compared with 59.6 per cent for the United States.¹

Per capita expenditure by state agencies for various types of public health services. The United States Public Health Service found a wide variation in annual per capita expenditures made by state governments in 1940, ranging from a high of \$4.26 in Nevada to a low of \$0.76 in Tennessee. The average for the country as a whole was \$1.90, the median \$2.20.²

¹ Mountin and Flook, op. cit., 56:1690.

² Ibid., p. 1690.

Table 60. Percentage distribution of expenditures
for public health services by state agencies,
Iowa and United States, 1940¹

State agency	Percentage distribution	
	Iowa	United States
Health departments	10.0	18.5
Special boards and commissions	0.4*	25.0
Departments of welfare	0.4*	21.3
Boards of control	47.9	16.0
Independent state hospitals, laboratories, etc.	0.0	5.4
Departments of labor	0.2	3.2
State universities or colleges	34.0	3.2
Departments of agriculture	4.7	2.3
All other agencies of state government	2.4	5.1
	100.0	100.0

*Information incomplete.

¹Source: Mountin, Joseph W., and Flook, Evelyn. Distribution of health services in the structure of state government. Ch. 1. The composite pattern of state health services. U.S. Public Health Reports 56:1690. 1941.

However, this difference in state per capita expenditure for health services does not necessarily indicate as wide a difference in health services available since local health services are not included in the figures.

The per capita expenditure in Iowa in 1940 for health services provided by the state and federal funds was \$1.88. This is approximately the average for the country as a whole but is below the median of \$2.20.¹

In 1940 for the United States as a whole, a total of \$190,653,400 was spent by state agencies for certain medical and dental care,² largely for mental hospital service. This sum amounted to about two-thirds of the outlay for all forms of state health work. On a per capita basis, the expenditures represented \$1.44, of which 76 per cent was allotted to psychiatric services, 4.8 per cent for services for crippled children, 0.2 per cent for dental services, and 19.0 per cent for general and other allied special medical care such as cancer, pneumonia, prevention and correction of blindness.³

In the same year Iowa state agencies spent \$3,667,700 in toto or \$1.44 per capita, including both state and federal funds, for certain medical and dental care. This per capita expenditure was approximately the national average. More than half went for psychiatric services, less than the national average; about five per cent for services for crippled children, which is near the national average; less than one per cent for dental care; and nearly 80 per cent for other services, e.g., cancer control, pneumonia control, prevention and correction of blindness⁴ (See Table 61).

¹Ibid.

²Some of the other services which are described later in this section are also medical. However, since they have been separated in the analysis of the U.S. Public Health Service, they are separated also in this thesis.

³Ibid., 57:1269.

⁴Ibid.

Table 61. State expenditures for public health service, Iowa and United States, 1940

Type of service	Iowa			United States		
	: Amount	: Per capita	: Per cent	: Amount	: Per capita	: Per cent
Medical and dental ¹	\$3,667,700	\$ 1.44	100.0:	\$190,653,400	\$1.42	100.0
Psychiatric	:		55.5:			76.0
Crippled children	:		5.1:			4.8
General and special	:		38.8:			19.0
Dental	:		0.6:			0.2
Tuberculosis ²	294,100	606.	³	24,906,300	371.	³
Communicable disease ⁴	44,500	0.018		1,985,600	0.016	
Venereal disease ⁵	73,800	0.029		5,104,100	0.039	
Sanitation ⁶	291,600	0.115		16,750,000	0.125	
Maternal and child health ⁷	120,200	2.75	⁸	6,172,600	2.638	¹⁰
Industrial ⁹	32,700	0.034	¹⁰	4,681,000	0.096	¹⁰
Central office ¹¹	180,000	.07	100.0:	10,478,100	.08	100.0
Vital statistics	:		8.7:			12.6
Laboratory services	:		33.7:			38.8
Health education	:		11.5:			13.9
Licensure	:		46.1:			34.7
Total	\$4,780,300	\$ 1.38		\$285,715,800	\$ 1.90	

¹ Sources: Mountin, Joseph W. and Flock, Evelyn. Distribution of health services in the structure of state government Ch. VI. Medical and dental care by state agencies. U.S. Public Health Reports 57:1269. 1942.

² Ibid. Ch. III. Tuberculosis control by state agencies. P.H.R. 57:83.

³ Expenditure per tuberculosis death. Ibid. (Exclusive of expenditure for tuberculosis, venereal disease, pneumonia and laboratory services.)

⁴ Ibid. Ch. II. Communicable disease control by state agencies. P.H.R. 56:2255.

⁵ Ibid., Ch. IV. Venereal disease control by state agencies. P.H.R. 57:555.

⁶ Ibid., Ch. V. Sanitation by state agencies, P.H.R. 57:946.

⁷ Ibid., Ch. VII. Maternity-child health activities by state agencies. P.H.R. 57:1817.

⁸ Approximate expenditure per live birth.

⁹ Ibid., Ch. VIII. Industrial health activities by state agencies. P.H.R. 58:33.

¹⁰ Approximate expenditure per member of labor force.

¹¹ Ibid., Ch. X. State Health Department Organization, P.H.R. 58:564.

Among the states New York spent the most per capita for certain medical and dental care, \$2.67. Tennessee spent the least, \$0.40, per capita. There are variations in expenditures for treatment facilities by geographic regions. The highest expenditures were in the northeast region with a median expenditure of \$2.04 per capita. The median for the southern states was \$0.64. The median for the western section was \$1.42, and for the central section,¹ \$1.08.

For tuberculosis control the Iowa expenditure is proportionately more than that in the United States as a whole, \$605 per death from tuberculosis in Iowa in contrast to \$371 for the United States.² It will be remembered that there are relatively fewer deaths from tuberculosis in Iowa. There is greater need for such expenditures in the other areas.³

For control of communicable diseases other than tuberculosis, venereal disease and pneumonia and for laboratory services for communicable disease diagnosis, the per capita expenditures are approximately the same in Iowa and the nation as a whole, \$0.018 in the former in comparison with \$0.016 in the latter. For venereal disease Iowa spends relatively less, \$0.029 per capita as against \$0.039.³

¹Ibid., 57:1270, 1271.

²Ibid., p. 1283.

³Ibid., 56:2255.

Maternal and child health expenditures are slightly more per live birth in Iowa than in the United States. Iowa spends \$2.75 per live birth; the average for the United States is \$2.63. Vermont spends \$11.06 for these services and Indiana \$1.67 per live birth.¹

In the United States as a whole, state and territorial programs of sanitation cost, in 1940, over \$1,600,000 per year, an average of approximately \$0.125 per capita. Among the states, not including territories, or Washington, D.C., a high of \$0.310 per capita was spent in Louisiana and \$0.298 in Nevada, and a low of \$0.16 in Texas and \$0.19 in New Mexico. Iowa's total expenditure was \$291,600, or \$0.115 per capita, slightly under the national average.²

In general the data on per capita expenditures for public health services seem to indicate that Iowa spends relatively less than many of the states. Nearly three-fourths of the states (35) reported a greater per capita expenditure on health services by all official state agencies than did Iowa.³

Trends in Public Health Organization and Expenditures

Trends in public health organization, staff, and expenditures should be considered from the standpoint of both local community and state public health services.

¹Ibid., 57:1817.

²Ibid., 57:946.

³Ibid., 56:1693.

In general the trend in public health work appears to be toward (1) creation of local departments of health including more people and larger areas than formerly, (2) expansion of staff and per capita expenditure, and (3) greater subsidization by the federal government for state activities and by the state for local activities. Much of the expansion of public health work in Iowa as well as in other states has been made possible by federal acts, beginning with the Social Security Act of 1935.

These trends will be discussed under the following headings: (1) growth of local health units in the United States and Iowa and (2) trend in expenditures for public health services.

Growth of local health units in the United States and Iowa

The development of local health units in this country has taken place largely under the sponsorship of state departments of health and the United States Department of Health. County units have been organized to carry on activities of the staff of state departments. They are largely educational. Grouping of county units into districts has been of the same nature. Few of them have had jurisdiction over local health matters. For the most part, as in Iowa, such jurisdiction lay with township and municipal governments which existed along with the county unit. The forming of county boards of health with jurisdiction over all townships and municipalities within the county is at present largely an anticipated development.

This section explores the development of local units in Iowa under three headings: (1) county or multi-county health units without general jurisdiction,

(2) district health units, and (3) county departments of health.

County or multi-county health units without general jurisdiction.

Over half of the present local public health units in the nation have been established since 1936, following the passage of the Social Security Act of 1935. In 1915 there were 14 counties in the United States with public health units: in 1935, 762; in 1940, 1,577; in 1941, 1,669. These 1,669 counties constitute more than half of the 3,070 counties in the United States¹ (See Table 62).

Table 62. Number and percentage distribution of full time single county and district public health units, United States, 1935 and 1941¹

Type of units	December 31, 1935		June 30, 1941	
	Counties	Per cent	Counties	Per cent
	served	of total	served	of total
Single county unit	436	64	663	40
Local district unit	124	16	426	25
State district unit	152	20	580	35
Total	762	100	1669	100

¹Source: Kratz, F.W. The present status of full-time local health organization. U.S. Public Health Reports 57:195. 1942.

Before 1930 only one county in Iowa had a county public health unit. This was the unit in Washington county, established in 1924 and reorganized in 1930 to conform to the Permissive County Health Unit Law of 1929.¹

¹Iowa State Department of Health. Biennial Report, 1937/38:139. 1938.

The second county health unit was organized in Woodbury county in 1930. A third unit was established in 1931 in Des Moines County. All of these excluded the largest cities in the county.

Until 1937 these were the only whole-time local health services in Iowa. The population served was approximately 160,000; 6.5 per cent of the total population of the state or 10.7 per cent of the rural population.¹ In 1937 a unit was established in Polk county, exclusive of the city of Des Moines, bringing to 190,325 the number of people served by county units, approximately 0.7 per cent of the total population or 12.7 per cent of the rural population of the state.

These county public health units do not replace local boards of health, however. Representatives of local boards and representatives of the local county medical society must be on the county board of health. The purpose of the county unit is to correlate and coordinate all public health activities in the county. Such matters as quarantine and recording of vital statistics still are under the jurisdiction of local boards.

After 1936 the growth of county health units in Iowa was closely related to the development of health districts as described in the following section.

District health units. District public health units not replacing local boards of health, but providing such services as public health nursing, have been developed during the thirties in Iowa, following the trend in the United States as a whole.

¹Ibid., 1935/36, p. 30. Percentage calculated, using 1930 census data in population.

Kratz reports that from 1935 to 1941 the number and proportion of single county units in the United States had declined and the number and proportion of public health districts had increased. In 1935, as shown in Table 62, 64 per cent of the 762 units in the nation were single county units, 16 per cent were local district units, and 20 per cent were state districts. In 1941, although the absolute number of all types of public health units had increased, the proportion of single county units had decreased to 40 per cent, whereas that of local districts had increased to 25 per cent and of state district units to 35 per cent of the total.

In Iowa the district health unit plan was inaugurated in 1936, developing on a voluntary, cooperative basis. It was hoped that under this plan it would be possible to improve the health and sanitary conditions in smaller communities and especially in rural areas. According to the plan, the state was divided into prospective health districts, each comprising four to six counties and each constituting a subdivision of the State Department of Health. The plan was that public health nursing services be established by the counties on a county-wide basis, groups of counties with this service then being organized into districts with state furnished district staff providing medical and public health nursing supervision and public health engineering. Such expansion was made possible through federal appropriations under Title V of the Social Security Act of 1935 and its amendment in 1939.

Three district health units were organized: District No. 1 with nine counties in northwestern Iowa, District No. 2 with seven counties in

southern Iowa, and District No. 3 in the eastern part of the state, again with seven counties. Each of these 22 counties had at least one public health nurse, and three of them had two nurses. Altogether the health services were extended to include more than 400,000 persons, approximately 17 per cent of the total population of the state.

By 1940 six additional counties had established full-time health services and a new health district had been organized with headquarters at Fort Dodge. The total population served by health units then included 697,000 persons, or 27.9 per cent of the population of the state. Of these 193,000 or 7.7 per cent were served by county health units and 504,000 or 20.2 per cent by district health units.¹

By July 1, 1941, every county was included in one of 11 district health units, all of which, except one, had been organized. Effective July 1, 1942, this district (No. 2) had been absorbed by other districts, so that there were actually 10 health districts. In 1943, 49 counties had whole time public health projects and another had part time nursing service. The Iowa State Department of Health has estimated that in the biennium July 1, 1942 - June 30, 1944, 44 per cent of the population were served by whole time public health projects and 58 per cent received the benefits of some public health services, including city public health work. No estimate was made of the proportion of rural population receiving such benefits as compared with urban.²

¹Ibid., 1939/40:126. 1940.

²Ibid., 1943/44:120. 1944.

County or multi-county boards of health. At present a trend toward county or multi-county health units to replace local boards of health seems probable.

For the United States as a whole the American Public Health Association recommended in 1942 approximately 1,127 units of local health jurisdiction to serve the 3,070 counties. Of these, it was recommended that 303 be units of one county each, 677 units of two to four counties and 147 of more than four counties.¹ When a city is included within a county it was recommended that there be only one local health jurisdiction for both populations. For Iowa a total of 36 local health jurisdictions was recommended.²

The creation of county boards of health, with full-time health officers in charge, has been urged by the Iowa State Department of Health since the twenties. At first, the emphasis was on this consolidation of health jurisdictions in order to standardize public health work and to coordinate activities within the counties. The methods used in local communities in Iowa for protecting public health and for handling cases of disease was said to vary almost as much as the number of communities.³ Later, stress was put on economy and making available public services to more people. The shift to planning for multi-county units or district units for areas of lower population density has come about quite recently.

¹Ibid., 1943/44:120. 1944.

²American Public Health Association. Committee on Local Health Units. Progress report: units of local health service for all the State. Amer. J. Public Health 33:407. 1943.

³Iowa State Department of Health. Biennial report, 1935/36:136. 1936.

The Iowa State Department of Health, working in close cooperation with committees of the American Medical Association and the American Public Health Association recommended in 1944 that:

In our post-war planning, consideration should be given to the following plan: seven city-county health departments in those counties having a population of more than 50,000 and approximately 20 district or multi-county health departments, thus dividing the state into 27 local health units.¹

The Iowa Post-war Rehabilitation Commission in its Report to the Governor and General Assembly submitted a plan embodying the following:

1. A proposal to provide a sound plan for health promotion and protection because it is not only a health measure but a plan to conserve our most precious resources - human resources. Army statistics relate 8 out of 10 men accepted for the armed forces have had some physical defect. Therefore we submit a plan embodying the following points:
 - A. The elimination of township boards of health.
 - B. The creation of county boards of health.
 - C. When and if counties adopt the county health unit or department plan, the county board of health so appointed may become autonomous and a definite budget be arranged to finance the project.
 - D. Permissive legislation for boards of supervisors to levy a small tax, not to exceed one-half mill if necessary, in some counties to finance a public health program.
 - E. In the interest of economy for those counties of less than 50,000 population, legislations should be enacted for the purpose of creating district or multi-county health departments.
 - F. The foregoing proposal would allow the formation of seven (7) city-county health departments and approximately 20 district or multi-county health departments.²

¹Ibid., 1943/44:123, 124. 1944.

²Iowa Post-war Rehabilitation Commission. Report presented to the Governor of Iowa and the fifty-first General Assembly. Des Moines. 1945. p. 76.

A bill to create 99 county boards of health was introduced into the Iowa General Assembly early in 1945 but was defeated.¹ Until such a bill is passed there will continue to be some 2,500 local health jurisdictions in the state with 1,600 township boards under legislation enacted in 1880 when state health activities were first established. At that time every township and municipality was required to have a board of health.

Trend in expenditures for public health services in Iowa

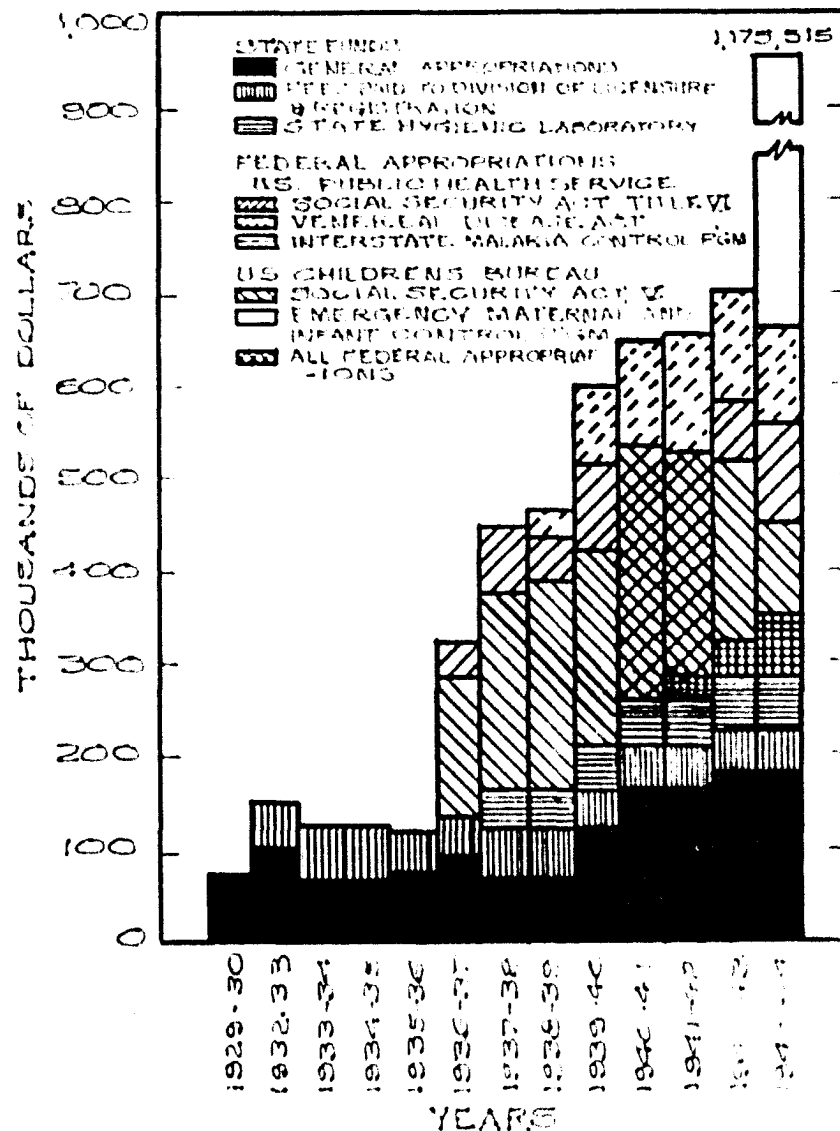
Expenditures for public health services in Iowa since 1930 have shown three trends: (1) increase in appropriations, (2) increased subsidization by the federal government for local and state public health work, and (3) expansion of types of service for which expenditures are made.

The total appropriations administered by the Iowa State Department of Health in the fiscal year 1939-1940 were more than seven times greater than those for 1929-1930. State appropriations alone were two and a half times greater. The rest of the increase was due to federal grants (See Figure 25 and Table 63).

State appropriations in 1932-1933 were more than 80 per cent greater than those of 1929-1930. They decreased about one-fourth in 1935-1936, thereafter increasing until they were over two and a half as much in 1939-1940

¹Iowa State General Assembly. Journal of the House. S.F.391, to amend Ch. 107 and 283, Code, 1939, relating to local boards of health and providing for a county board of health, failed to pass the House. Mar. 23, 1945. p. 873-875.

Figure 25. Funds¹ administered by Iowa State Department of Health, 1932-1944²



¹ Includes state and federal funds.

² Source: Iowa State Department of Health Biennial reports 1928-30:9, 1930; 1932/34:9, 1932; 1934/36:11-13, 1936; 1936/38:14, 1938; 1938/40:13-20, 1940; 1940/42:13-14, 1942; 1942/44:9-10, 1940.

Table 63. Appropriations to Iowa State Department
of Health, 1929-1944²

Year	State	Federal				Total
		U.S. Public Health Service		Children's Bureau		
		Social Security Act	Venereal diseases	Social Security Act	Total	
		Title VI	Act 1938	Title V		
1929-30:	81,525.00					
1932-33:	149,648.10					
1933-34:	116,002.97					
1934-35:	116,475.41					
1935-36:	115,295.00					
1936-37:	123,920.23	152,493.97		52,809.67	205,103.64	329,023.87
1937-38:	156,664.45	224,836.75		58,599.70	283,436.35	440,100.90
1938-39:	162,526.89	197,760.09	43,584.00	64,382.04	306,706.13	468,233.02
1939-40:	207,664.80	211,463.65	82,312.00	94,850.94	388,626.59	596,291.39
1940-41:	272,338.00 ³	265,357.13 ⁴	107,428.95		372,786.07	645,624.07
1941-42:	292,338.00 ³	257,704.57 ⁴	122,053.61		379,758.18	652,596.18
1942-43:	321,116.00 ³	198,343.00	112,015.00	69,957.36	380,315.36	701,431.36
1943-44:	352,880.00 ³	105,515.75	107,489.00	91,378.11 ⁵)	823,634.86 ¹	1,176,514.86
				519,252.5 ⁵)		

\$61.

¹Includes (1) balance each year from preceding year and (2) fees paid to Division of Licensure and Registration.

²Source: Iowa State Department of Health Biennial reports 1928/30:9. 1930; 1932/34:9. 1932; 1934/36:11-13. 1936; 1936/38:14. 1938; 1938/40:13-20. 1940; 1940/42:13-14. 1942; 1942/44:9-10; 1940.

Iowa General Assembly Acts 49:8, 30, 39, 56. 1941.

³Includes an estimate of \$40,000 from fees paid to Division of Licensure and Registration. Actual data for this item is not available.)

⁴Includes all funds from Social Security Act.

⁵Emergency Maternal and Infant Care.
(1930-31 omitted purposely)

as they had been in 1929-30. In 1943-40 they were four times as much as in 1929-30.

Federal grants authorized by Titles V and VI of the Social Security Act of 1935, together with a slight increase in state appropriations, resulted in a doubling of funds administered by the State Department of Health from 1935-36 to 1936-37. Federal appropriations to the State Department of Health continued to increase. In 1939-1940 they were 89.5 per cent higher than they had been in 1936-37. Both funds for particular public health activities and the number of activities have expanded. In 1936-37 \$46,428.84 was allotted to three county health units and two district health units. In 1941-1942 over four times this amount was allotted to ten district health units. The four county health units had been aided in the intervening years and a growing number of district health units.

Rural Sanitation in Iowa

Sanitation in cities has long been given an important place in public health service in the United States, for the most part by local health departments. Only recently has attention been turned to sanitation service in rural areas. In this section will be considered, briefly, a general survey of public health sanitation in the United States and Iowa, studies of rural sanitation, and sanitation activities in Iowa with respect to water supply, sewage disposal and milk supply in rural communities. Research in stream pollution in Iowa and the geological survey undertaken

with the United States Public Health Service, although they affect to some extent rural families, will not be included.

General survey of public health sanitation in the United States and Iowa

Environmental sanitation was one of the first public health measures. It was discovered early that certain types of disease are transmitted through water and food. Development in sanitation has paralleled the development of the entire public health field.

Early efforts were directed toward sanitary supervision of water supplies and facilities for sewage disposal. These fields have expanded gradually to include prevention of stream pollution; sanitation of foods, both raw and processed; sanitation in food handling establishments; sanitation of recreational facilities, including swimming pools, bathing beaches, roadside picnic grounds, and camps; housing and plumbing control; disposal and collection of garbage; control of insect vectors of sanitation.¹

In all of the states and territories the health department has the major responsibility for the sanitation of public water supplies and sewage, although in three-fourths of the states some other state agencies collaborate with the health department on special features of the program. In Iowa, for example, the Department of Agriculture and the State University collaborate with the Department of Health in this respect.

Relatively little state regulatory control is maintained over water

¹Mountin and Flook, op. cit., 57:885-886.

supplies and sewage disposal facilities on private premises in the United States. In 1940 less than one-third of the states had control over both, 10 states had no regulation whatever, 21 states had regulations for sewage disposal, and five had the regulation applied only to special conditions.¹

The Iowa State Department of Health enforces state laws and regulations governing water supplies and sewage disposal facilities for municipalities, schools, industries, camps, roadside parks, and comfort stations. The Department approves plans for the installation or extension of public water supplies. Inspections are made periodically for public sewage disposal facilities and frequently, but not at regular intervals, for public water supplies. These inspections also are made for semi-private laboratory service which test the safety of water from public supplies, the adequacy of sewage treatment by public plants, and for the degree of stream pollution.² Private water supplies are tested from samples by the State Department of Health at the laboratories located at the State University. The Department seldom acts for private premises except upon request, unless there is a nuisance or danger of disease.

The State Department of Health promotes local programs of control. For example, it promoted WPA projects for constructing private and septic tanks and for repairing wells in the thirties. It provides consultation and advisory service to local organizations and to individuals or corporations. In its grants to local health units for general health work, funds are included for these types of activity.

¹Ibid., p. 898.

²Ibid., p. 891. The Department of Agriculture inspects some industrial water supplies routinely but at irregular times.

Studies of rural sanitation needs

Several studies have shown that much improvement is needed in rural sanitation.

The fact that there is need for better sanitation in rural areas and small cities in the United States in general is indicated by a study of outbreaks of water-borne diseases in the United States from 1930 to 1936 made by the Committee on Water Supply of the American Public Health Association. The greatest need for improvement in sanitation appears to be in places from 1,000 to 5,000 in population. Although the population of these places comprised less than a tenth of the total population of the nation according to the 1930 census, as shown in Table 64, over a fifth of the outbreaks of water-borne diseases occurred there, and 20.9 per cent of the cases of typhoid fever. It is significant that about half of all outbreaks of water-borne diseases occurred in places under 1,000 population, although only 40 per cent of the total population resided in rural areas. The proportion of typhoid fever cases in these areas, however, was approximately the same as proportion of population. Places under 5,000 in population had nearly half of the population of the country but nearly three-fourths of the outbreaks of all water-borne diseases and four-fifths of the cases of typhoid fever. (See Table 64).

In Iowa the State Planning Board made a study of rural sanitation facilities in 1936 as part of a survey of public health facilities in the state. References to the study are made in the following section.

Table 64. Distribution of outbreaks of water-borne diseases
by size of locality, United States, 1930-1936

Size of locality	: Per cent : : population : : 1930 census :	: Outbreaks :	: Cases : : typhoid : : fever :	: Total : : persons : : affected :
A. Percentage ¹				
Under 1,000	40.0	50.6	39.3	16.1
1,000-5,000	7.7	21.8	20.9	16.3
5,000-10,000	4.8	6.5	3.9	10.4
10,000-25,000	7.4	6.5	7.6	2.9
25,000-50,000	5.2	3.5	6.4	12.3
50,000-100,000	5.3	3.5	8.5	30.7
100,000-500,000	12.6	4.1	9.2	1.6
500,000-1,000,000	4.7	.0	.0	0.0
Over 1,000,000	12.3	3.5	4.2	9.7
Total	100.0	100.0	100.0	100.0
B. Cumulative percentages				
Under 1,000	40.0	50.6	39.3	16.1
Under 5,000	47.7	72.4	60.2	32.4
Under 10,000	52.5	78.9	64.1	42.8
Under 25,000	59.9	85.4	71.1	45.7
Under 50,000	65.1	88.9	78.1	56.0
Under 100,000	70.4	92.4	86.6	68.7
Under 500,000	83.0	96.5	95.8	90.3
Under 1,000,000	87.7	96.5	95.8	90.3
All	100.0	100.0	100.0	100.0

¹Source: American Public Health Association Committee on Water Supply, Water-borne outbreaks in the United States and Canada and their significance. Amer. Public Health Assoc. Yearbook, 1937-38. p. 142. 1938.

²Calculated from part A.

Rural sanitation in Iowa

Little had been done by public health services in regard to rural sanitation in Iowa until the thirties. There still is need for development in this area. However, during the past decade several steps have been taken in this direction. Types of service which are provided by the State Department of Health include (1) testing of water samples sent to the State Hygienic Laboratory; (2) inspection of rural school sanitation; (3) cooperation with federal agencies in projects to improve both public and private water supply and sewage systems, and (4) distribution of educational material such as bulletins relating to the construction of wells and privies in individual farms and the importance of sanitation to health.

In tracing some of the steps which have been taken in Iowa together with present status and needs in this area, the following are discussed: (1) extent of public water supply systems; (2) approved water supplies; (3) private water supplies; (4) public sewage disposal systems; (5) private sewage disposal systems; (6) school sanitation; and (7) place of federal aid in the expansion of rural sanitation.

Extent of public water supplies in Iowa. All municipalities in Iowa over 2,000 in population in 1940 had public water supplies, although not all of them had been approved by the State Department of Health. All but one city of 10,000 or more have approved water supplies. Among those under 10,000 in population, the proportion having approved water supplies varies with the size of community. Of the 500 places under 500 in

population less than 40 per cent had public supplies; of the 212 places of from 500 to 1,000 population, 85 per cent; of the 99 places from 1,000 to 2,000 in population, nearly 100 per cent. Of all municipalities in Iowa, 62.9 per cent had public water supplies (See Figure 26 and Table 65).

The relative proportion of persons within a population size group receiving water from public water supplies in Iowa municipalities also varied directly with the size of the locality. Although more than 90 per cent of the population residing in municipalities of Iowa were receiving water from public supplies, according to the State Department of Health, less than 50 per cent of the population in places less than 500 had water from a public supply. In places from 500 to 1,000 in population the percentage rose to nearly 100 per cent. In places over 2,000 in population all of the people received water from public supplies (See Table 65).

Approved public water supplies in Iowa.¹ The Iowa State Department of Health stated in 1942:

Most of the water from publicly owned sources is of good quality as furnished the public. There has been great improvement in the quality of public water supply furnished the people of Iowa communities in recent years. Many school wells continue to be unsatisfactory, however. Private water supplies on the other hand continue to be neglected to such an extent that the greater number of specimens are reported either unsatisfactory or of doubtful quality. Some improvement is noted but it is by no means so marked as in the case of the public supplies.²

¹The State Department of Health has stated in several reports that the requirements for full approval of a public water supply are rigid and that most of the public water supplies in Iowa which were not fully approved, had failed to be approved because of some minor defect, only a few presenting serious potential hazards.

²Iowa State Department of Health. Biennial report, 1941/42:125. 1942.

Figure 26. Percentage of localities having public water supplies, by size of locality, Iowa, 1940¹

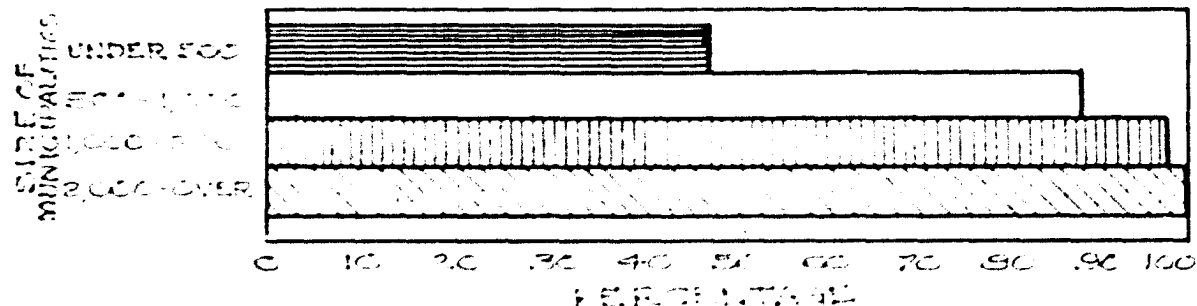


Table 65. Public water supplies by size of municipality, Iowa, 1940¹

Size of municipality	Incorporated municipalities		Municipalities having water supply			
	Number	Population	Number	Per cent ²	Population	
					Number	Per cent
Over 15,000	16	658,860	16	100	658,860	100
2,000-15,000	89	372,599	89	100	372,599	100
1,000-2,000	99	134,735	97	97.9	131,109	97.5
500-1,000	212	146,757	182	85.9	127,389	86.9
Under 500	500	131,263	191	38.2	63,368	48.2
	916	1,444,214	575	62.8	1,353,326	93.6

¹Source: Iowa State Department of Health. Biennial report, 1939/40. p. 92. 1940.

²Based on 1930 population. In addition 9 unincorporated towns have water supplies. Calculated from columns 2 and 4.

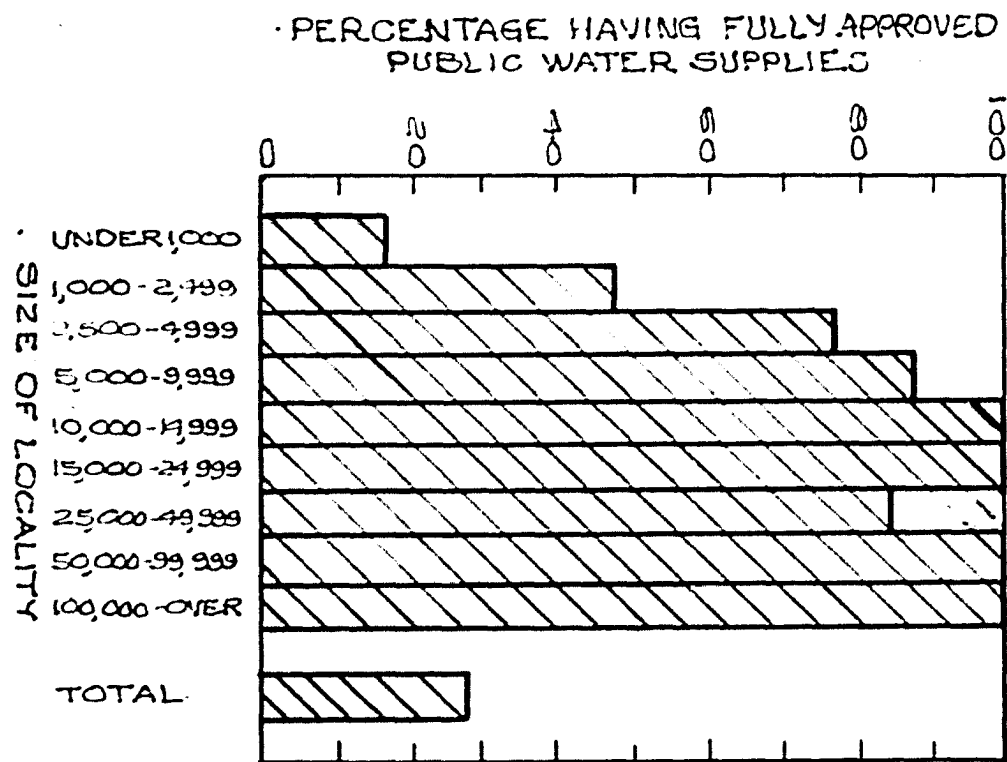
As shown in Figure 27 and Table 66, the number of approved public water supply systems in both rural and urban communities has increased greatly since 1929, when the State Department of Health began its comprehensive water survey of Iowa municipalities. In 1930, 24 public water supplies in Iowa were fully approved;¹ 31 in 1931, 103 in 1934, 150 in 1936, 186 in 1938, 216 in 1940, 243 in 1942 and 254 in 1944.

The data show that a much smaller proportion of rural than urban municipalities have fully approved public water supplies, despite the fact that the number of villages having fully approved water supplies has increased greatly since 1930. In 1944 all but one city over 10,000 in population had fully approved public water supplies. For places under 10,000 the percentage decreases with size of communities: 86.96 per cent of the places from 5,000 to 10,000 having fully approved public water systems, 77.77 per cent of places from 2,500 to 5,000, 46.28 per cent of places from 1,000 to 2,500 and only 17.20 per cent of places under 1,000 in population (See Figure 28 and Table 66).

The above data relate in the main to incorporated municipalities in Iowa. In 1940 there were nine unincorporated towns which had public

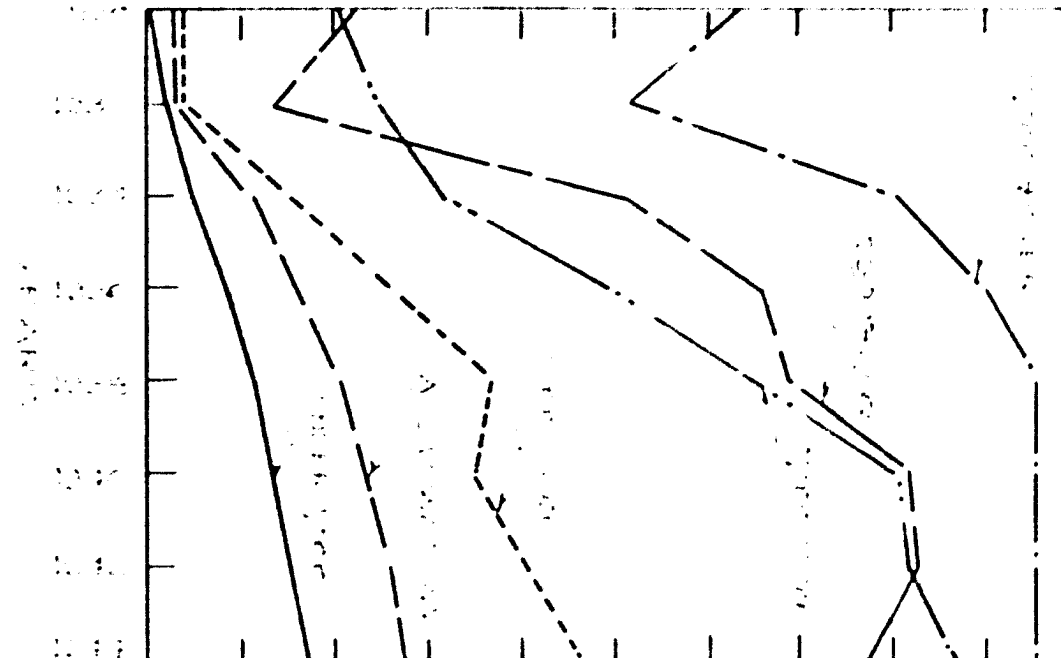
¹As of June 30, 1930 the water of only 229 municipalities had been examined of which 24 or 10.5 per cent had been approved, 110 or 45.7 per cent had been provisionally approved, and 105 or 45.8 per cent were not approved. (Calculated from data in Iowa State Department of Health, Biennial report 1929/30:79, 80, 84. 1930)

Figure 27. Percentage of localities having public water supplies approved by State Department of Health, Iowa, 1944¹



¹Source: Calculated from (1) Iowa State Department of Health. Biennial Report 1942/44:105-106. and (2) U.S. Bur. of Census:1940. Population 2:927-985. 1943.

Figure 28. Percentage of localities having public water supplies approved¹
by State Department of Health, by size of locality, Iowa, 1930-1944



¹Source: Calculated from (1) Iowa State Department of Health. Biennial reports:1929/30:78; 1931/32:47; 1932/34:17; 1935/36:23-24; 1937/38:105-106; 1939/40:89-90; 1941/42:84-85; and 1942/44:80-81; and (2) U.S. Bur. of Census:1940. Population 2:927-985. 1943.

Table 66. Number and percentage of localities having public water supplies approved by State Department of Health, by size of locality, Iowa, 1932-1944

Size of municipality	1930	1932	1934	1936	1938	1940	1942	1944
A. Number of municipalities ¹								
Under 1,000	711					716		
1,000-2,499	121					127		
2,500-4,999	48					45		
5,000-9,999	14					23		
10,000-14,999	5					5		
15,000-24,999	6					5		
25,000-49,999	6					6		
50,000-99,999	3					4		
100,000 and over	1					1		
Total	915					931		
B. Number of municipalities having approved water supplies ²								
Under 1,000	1	6	41	59	79	95	118	123
1,000-2,499	6	6	19	32	45	45	49	56
2,500-4,999	3	6	25	32	33	37	37	35
5,000-9,999	1	2	5	7	9	19	19	20
10,000-14,999	3	3	4	5	5	5	5	5
15,000-24,999	2	3	4	5	6	5	5	5
25,000-49,999	5	3	5	5	5	5	5	5
50,000-99,999	2	1	3	3	3	4	4	4
100,000 and over	1	1	1	1	1	1	1	1
Total	24	31	108	150	186	216	248	254
C. Percentage of places with approved water supplies ³								
Under 1,000	.15	1.83	4.36	8.29	11.11	13.29	16.50	17.20
1,000-2,499	4.96	3.95	15.70	26.45	37.19	35.43	40.49	46.28
2,500-4,999	21.43	12.50	52.08	66.66	68.75	82.22	82.22	77.77
5,000-9,999	20.00	14.23	31.71	50.00	64.29	82.61	82.61	86.96
10,000-14,999	100.00	60.00	80.00	100.00	100.00	100.00	100.00	100.00
15,000-24,999	33.33	50.00	66.66	83.33	100.00	100.00	100.00	100.00
25,000-49,999	33.33	50.00	83.33	83.33	83.33	83.33	83.33	83.33
50,000-99,999	66.66	33.33	100.00	100.00	100.00	100.00	100.00	100.00
100,000 and over	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Total	2.62	3.39	11.18	16.39	20.33	23.20	26.10	27.28

¹Source: U.S. Bur. of Census:1940. Population 2:927-985. 1943.

²Source: Iowa State Department of Health. Biennial reports:1929/30:79; 1931/32:47; 1932/34:17; 1935/36:23-24; 1937/38:105-106; 1939/40:89-90; 1941/42:84-85; and 1942/44:80-81.

³Calculated from A and B.

water supplies.¹ The State Department of Health reports that records of the state laboratory over a period of years indicated that about 85 per cent of the rural water supplies were unsatisfactory upon analysis.²

Private water supplies for farm homes in Iowa. Private water supplies for farm homes may be protected in two ways: (1) care on the part of the individual family in the proper location and construction of its water supply and care in its use and (2) protection of the underground water in Iowa. The first depends upon knowledge of how the system should be built. Here the state and local public health service can offer assistance. Rural sanitary engineers in some parts of the state have provided service of this nature.

The State Department of Health in its 1942 Biennial Report pointed out that water was an important resource being wasted and being endangered because no one had the authority to protect it and that legislation in this field seemed imperative.³

The protection of underground water seems to be a function of the State Department of Health.

In 1942, proposed legislation for the protection of underground water was prepared jointly by the State Department of Health, the State Department of Conservation and the State Geological Society and was introduced in the General Assembly at that time. It was not acted upon.

¹Iowa State Department of Health. Biennial report, 1939/40:92. 1940.

²Ibid., 1935/36:29. 1936.

³Ibid., 1941/42:88. 1942.

Extent of public sewage disposal systems in Iowa. The survey by the Iowa State Planning Board in 1935-1936 indicated that a smaller proportion of the population is estimated to be served by public sewer systems than by water systems. It was found that 34 per cent of the town population in 90 counties was found to use individual means of disposing of sewage. The degree of adequacy of sewage disposal systems was found to vary widely and directly with the size of the town.¹ One county was found to have no public sewer system and ten other counties to have only one public sewer system operating.

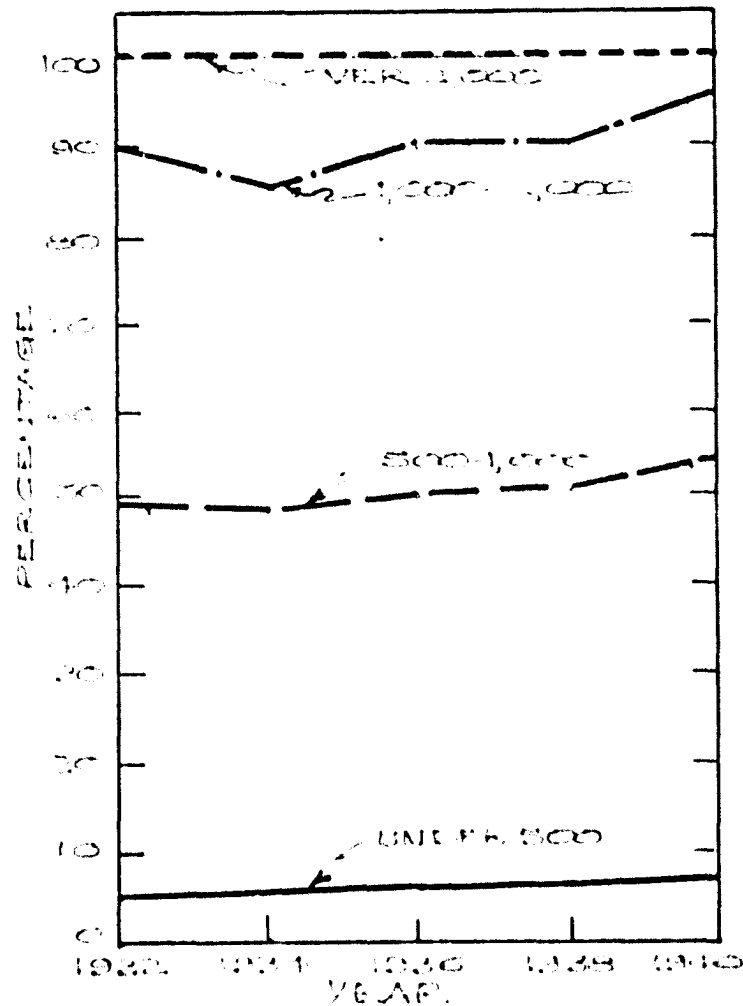
Figure 29 and Table 67 show the relative growth in public sewage disposal in Iowa from 1932 to 1944. The percentage of population in areas having sanitary sewers in which the sewage was treated doubled in the decade. The actual number of places having public sewage systems did not increase greatly, however. In 1940, 38.1 per cent of Iowa municipalities had public sewer systems, against 35.4 per cent in 1932. The number of places under 500 which had public sewer systems still was very small, 6.6 per cent in 1940.

The reports of the State Health Department concerning public sewage systems in Iowa for communities of various sizes from 1932 to 1942 bear out the hypothesis that the adequacy of public sewer systems varies with size of community. In 1940, for example, only 6.6 per cent of the towns

¹Iowa State Planning Board, op. cit., p. 47.

²Ibid., p. 45.

Figure 29. Percentage of localities having public sewer systems approved by State Department of Health, by size of locality, Iowa, 1932-1940



¹Source: Calculated from (1) Iowa State Department of Health. Biennial reports 1931/32:48; 1933/34:19; 1935/36:18; 1937/38:110; 1939/40:96; 1942/43:92; and (2) 1932-1940 Based on 1930 population, 1942 based on 1940 population.

Table 67. Public sewage systems by size of municipality

Size of municipality	Year	Municipalities		Municipalities having public sewer systems					
		Number ³	Population ³	Number ¹	Per cent ⁴	Population served		Percentage in places of this size ²	Number
						Number	Percentage		
Under 500	1932	500	131,263	24	4.8	9,686	7.4	22	
	1934	500	131,263	25	5.0	10,179	7.8	22	
	1936	500	131,263	27	5.4	10,835	8.3	24	
	1938	500	131,263	28	5.6	10,992	8.4	25	
	1940	500	131,263	33	6.6	12,633	9.6	30	
	1942	--	--	31	--	11,611	--	28	
500-1,000	1932	212	146,757	105	49.5	77,550	52.8	80	
	1934	212	146,757	104	49.1	76,268	52.0	79	
	1936	212	146,757	108	50.9	79,103	53.9	83	
	1938	212	146,757	110	51.9	80,124	54.6	85	
	1940	212	146,757	116	54.7	84,049	57.3	90	
	1942	--	--	111	--	81,531	--	89	
1,000-2,000	1932	99	134,735	90	90.9	123,178	91.4	68	
	1934	99	134,735	85	85.9	115,058	85.4	64	
	1936	99	134,735	91	91.9	124,771	92.6	72	
	1938	99	134,735	91	91.9	124,771	92.6	72	
	1940	99	134,735	98	98.0	129,375	96.0	76	
	1942	--	--	98	--	134,913	--	77	
2,000-15,000	1932	89	372,599	89	100.0	372,106	99.9	46	
	1934	89	372,599	94	105.6	380,136	102.0	56	
	1936	89	372,599	89	100.0	372,106	99.9	58	
	1938	89	372,599	89	100.0	372,106	--	60	
	1940	89	372,599	89	100.0	372,599	100.0	71	
	1942	--	--	89	--	372,599	--	71	
Over 15,000	1932	16	658,860	16	100.0	658,860	100.0	1	
	1934	16		16	100.0	658,860	100.0	2	
	1936	16		16	100.0	658,860	100.0	3	
	1938	16		16	100.0	658,860	100.0	6	
	1940	16		16	100.0	658,860	100.0	8	
	1942	--	--	16	100.0	710,856	107.9	8	
Total	1932	916	1,444,214	324	35.4	1,241,380	86.0	217	
	1934	916	1,444,214	324	35.4	1,240,519	85.9	223	
	1936	916	1,444,214	331	36.1	1,245,675	86.3	240	
	1938	916	1,444,214	334	36.5	1,247,536	86.4	248	
	1940	916	1,444,214	349	38.1	1,257,516	87.1	275	
	1942	--	--	351	--	1,360,478	--	279	

¹Iowa State Department of Health. Biennial reports 1931/32:48; 1933/34:19; 1935/36:18²1932-1940 Based on 1930 population, 1942 based on 1940 population.³Ibid., p. 92.⁴Calculated from

sewage systems by size of locality, Iowa, 1932-1942

Municipalities treating sewage				
Percentage of population having sanitary sewers in which sewage is treated ²	Percentage of population in places of this size ⁴	Number ¹	Population ¹	Percentage of population in places of this size ⁴
7.4	22	9,037	93.3	6.9
7.8	22	9,057	88.8	6.9
8.3	24	9,693	89.5	7.4
8.4	25	9,986	90.8	7.6
9.6	30	11,627	92.0	8.9
—	28	10,446	90.0	—
52.8	80	59,710	77.0	40.7
52.0	79	58,476	76.7	39.8
53.9	83	61,293	77.5	41.8
54.6	85	62,504	78.0	42.6
57.3	90	65,332	77.7	44.6
—	89	65,016	79.7	—
81.4	68	92,810	75.2	68.9
85.4	64	86,403	75.1	64.1
92.6	72	97,844	78.4	72.6
92.6	72	97,844	78.4	72.6
96.0	76	102,448	79.2	76.0
—	77	105,092	77.9	—
99.9	46	203,129	54.6	54.5
102.0	56	224,885	59.2	60.4
99.9	58	239,529	64.4	64.3
—	60	252,067	67.7	67.7
100.0	71	296,383	79.5	79.5
—	71	296,383	79.5	—
100.0	1	23,304	3.5	3.5
100.0	2	79,501	12.1	12.1
100.0	3	94,741	14.4	14.4
100.0	6	319,946	48.6	48.6
100.0	8	383,510	58.2	58.2
107.9	8	426,127	59.9	—
86.0	217	387,990	31.3	26.9
85.9	223	458,306	36.9	31.7
86.3	240	503,100	40.4	34.8
86.4	248	742,347	59.5	51.4
87.1	275	859,299	68.3	59.5
—	279	947,701	69.7	—

1933/34:19; 1935/36:18; 1937/38:110; 1939/40:96; 1942/43:92.

⁴Calculated from above data.

in Iowa under 500 in population had sanitary sewer systems. The percentage rose to 54.7 in places from 500 to 1,000 in population, 95.9 in places from 1,000 to 2,000 and 100.0 in places over 2,000. The approximate proportion of people residing in communities of these sizes who were served by public sewage systems were respectively one-tenth, six-tenths, nine-tenths and 100 per cent as indicated in Table 67.

Some municipalities dump raw sewage into streams. The proportion of people living in various communities which have sewage systems and also treat the sewage as related to the total population living in places of that size showed the following picture in 1940: 8.8 per cent of the people in places under 500; 44.7 per cent of the people in places 500 to 1,000; 76.0 per cent of those in places 1,000 to 2,000; 79.5 per cent of those in places 2,000 to 15,000; and 89.9 per cent of those in places over 15,000. For the state the percentage was 59.5.

However, data indicate that of the places which have sanitary sewage systems, the smaller towns do relatively better in treating the sewage than do larger places. Using as a base the total population in places of various sizes having public sewage systems, the percentage of population served by systems treating the sewage was in 1940 approximately 90 per cent for places under 500 in population, 80 per cent in places from 500 to 1,000, 1,000 to 2,000, and 2,000 to 15,000; 60 per cent in places over 15,000, and slightly under 70 per cent for Iowa as a whole (See Table 67).

Rural school sanitation. With respect to school sanitation in Iowa, the State Department of Health has no specific authority. The State Department

of Public Instruction has some authority, but according to the State Department of Health even this authority is inadequate. There is no legal provision by which plans and specifications for sanitary facilities in schools must be approved by the State Department of Health.¹

Inspections are made of sanitation in rural schools by the State Department of Health and recommendations are made. In 1921-1942, one-sixth of the rural schools in Iowa were inspected by the State Department of Health.² Although the State Department of Health inspects schools in rural areas as to sanitary conditions affecting health, the authority to order any changes lies with the State Department of Public Instruction. However, there is close cooperation among the various state agencies concerned with health conditions.

The State Department of Health advocates having rural school sanitation a function of local health units.³

Education in health is a major activity of the State Department of Health in the field of rural school sanitation. Much of it is done in cooperation with the State Department of Public Instruction. For example, a rural school sanitation manual was prepared in 1942 by the two departments in cooperation with the Engineering Extension Service of Iowa State College.

¹Iowa State Department of Health. Biennial report, 1941/42:97. 1942.

²Ibid., p. 96.

³Ibid., 1943/44:87.

Milk sanitation. The State Department of Health has no jurisdiction over milk sanitation. Such jurisdiction is held by local governments.¹

That there is need for better milk sanitation is indicated by the fact that 18 epidemics in Iowa were traced to infected milk during the decade 1928-1938.² There doubtless were, in addition, scattered cases of disease spread through the medium of milk. As of 1942, a total of 22 cities and towns had adopted the Standard Milk Ordinance of the United States Public Health Service.³ However, according to a letter survey by the Iowa State Department of Health in 1938 only 35 Iowa municipalities inspected their milk supplies.

Although the State Department of Health has no jurisdiction over milk supply, it does promote milk sanitation on the local level. The work of the milk sanitarian in the state department is largely educational. He visits dairy farms and pasteurization plants and addresses various groups including official, dairy and civic groups. The nature of his work is advisory, for the purpose of promoting milk sanitation at the local level. In 1941-1942, for example, the State milk sanitarian visited 475 dairy farms and 225 pasteurization plants. He also addressed 179 official dairy and civic groups in 405 Iowa communities.⁴

¹Ibid., 1941/42:108. The State Department of Agriculture has some jurisdiction over milk consumption and operation of pasteurization.

²Ibid., 1937/38:113.

³Ibid., 1941/42:103.

⁴Ibid., p. 108-109.

As of spring, 1945, according to the State Department of Health, approximately eighty per cent of the one million people living in towns and cities of Iowa bought milk from inspected supplies.¹ The other 20 per cent, roughly 200,000 people, lived in smaller towns which could not afford to pay the total cost of inspection.

Recognizing that smaller communities in Iowa cannot afford to employ properly qualified milk inspectors and would not need their services full time, the State Department of Health is helping groups of communities to employ a full-time, well qualified milk inspector. In 1941-42 two such groups were established.² As of April 1, 1945 there were six groups. Each participating municipality pays on a per capita basis, 12 cents per capita per year for operation of costs including salary, travel, and laboratory.³ The plan is that other communities will be added. When the group is large enough to be self-supporting the appropriations of the State Department of Health will be used to establish similar groups elsewhere.

There is need also for regulation concerning immunization of cattle

¹Schultz, William H. Iowa State Department of Health. Information on milk sanitation in Iowa. Private communication. 1945.

²Iowa State Department of Health. Biennial report, 1941/42:109. 1942.

³Schultz, William H., op. cit. The six units included:
 Carroll--Headquarters, Atlantic, Audubon, Exira, Ida Grove, Paullina,
 Sheldon.
 Centerville--Headquarters, Albia, Chariton, Corydon, Lamoni
 Charles City--Headquarters, Nashua, New Hampton
 Fairfield--Headquarters, Mt. Pleasant, Washington
 Marshalltown--Headquarters, Grinnell, Newton, Tama, Traer, Toledo
 Webster City--Headquarters, Bode, Eagle Grove, Humboldt, Madrid, Manson,
 Rockwell City

against undulant fever. According to the State Department of Health, clinical records indicate that milk is the most important sanitation problem in the state at the present time. Several epidemics and illnesses have been traced to infected milk.¹

These data seem to indicate that a statement appearing in the biennial report of the State Department of Health in 1934 still holds true.

Under the present set-up in Iowa, it appears that routine milk sanitation work must be carried on by local officials. Ultimately full time county or district health units should take over this important work.²

These would be, of course, a part of larger district and state units.

Place of federal aid in expansion of rural sanitation. In the early thirties rural sanitation work performed by the State Department of Health consisted mainly of the provision of bulletins describing plans for water supplies and sewage facilities, showing proper well construction, protection of wells, sanitary privies, and disposal of sewage for isolated dwellings. Testing of water was provided.

The expansion of public rural health sanitation since then has been made possible in the main by federal funds. The Social Security Act made funds available in April 1936 for a rural sanitation engineer in the State Department of Health to develop a rural sanitation program, his primary function being merely to advise the Department of Public Instruction,

¹Iowa State Department of Health. Biennial Report 1941/42:109. 1942.

²Ibid., 1933/34:24.

County Superintendents of Schools and local school boards with an aim toward developing a cooperative program for better rural school sanitation. The services of the rural sanitation engineer are also used to promote improved water supplies and sewage facilities in separate localities. The engineer advises with municipal governments and with individuals. The establishment of county and district health units beginning about this same time made possible some expansion of these activities.¹ The division of the state into ten health districts with a district public health engineer in each was a big step toward provision of better services. Some of the funds for this purpose were from federal sources.

There are, in addition, three types of action which should be mentioned specifically:

(1) Many municipalities during the depression took advantage of Civil Works Administration and Federal Emergency Relief Administration labor in improving existing plants and Public Works Administration labor in building new plants.² The work began during this period and urged by the State Department of Health³ was continued later under the Works Projects Administration.

¹Ibid., 1935/36:28-29. 1936.

²Ibid., 1933/34:19. 1934.

³For example, as reported in 1936 several towns had started sewage treatment works and others had been ordered to do so. This was largely a result of the stream pollution survey carried on by the State Department of Health. Ibid., 1935/36:16, 17. 1936.

(2) Another type of federal aid has been used to improve rural sanitation. A community Sanitation Works Projects Administration was sponsored jointly by the State Department of Health and the United States Public Health Service. In this project approximately 8,000 sanitary privies were built at schools and for private homes. Under the plan, the W.P.A. furnished the labor and the owner furnished materials. The project was authorized in 39 counties in southern Iowa but W.P.A. labor was available in only 20 counties.¹ The Community Sanitation Project ended October 1, 1941 due to lack of funds.²

(3) A third program in rural sanitation is the housing project carried on cooperatively by the State Department of Health and the Farm Security Administration.³ The demonstration was carried on in 10 counties.⁴ In selected farm homes sanitary toilet facilities were provided and wells reconstructed or new wells built. The plans and work were supervised by the district sanitary engineers. However, the volume of homes reached was very small.⁴

¹Ibid., 1935/36:8, 31; 1937/38:116.

²Ibid., 1935/36:8, 31; 1937/38:116; 1941/42: up to July 1, 1936, 1,307 had built; 1936-1938, 6,367; 1941, 499.

³a. Ibid., 1941/42:99.

b. Borgman, Elizabeth, op. cit.

⁴The 10 counties were: Appanoose, Clarke, Decatur, Lucas, Monroe, Union, Wayne, Woodbury, Crawford, and Monona. A total of 275 families received benefits. Sanitary privies were installed for 267 families, water supplies were improved for 203 families, and five houses were screened.

Details on certain other types of activities carried on by public health agencies

An exhaustive discussion of activities carried on by public health agencies in Iowa is beyond the scope of the present study. However, it is well to include a few details on certain other types of activities which relate to rural families. Some of these are comparatively new. In this section are examined those relating more directly to individuals.

Among those considered in this section are (1) quarantine in rural communities, (2) direct preventive services for individuals, (3) diagnostic and therapeutic service, and (4) education.

Quarantine in rural communities

The State Department of Health has authority to regulate within Iowa the quarantine and/or treatment of persons with infectious diseases. The federal government has authority to quarantine communicable diseases at state lines.

In Iowa, quarantine is mandatory for nine diseases: scarlet fever, smallpox, diphtheria, cholera, leprosy, cerebro-spinal meningitis, anterior poliomyelitis, Spanish influenza, and bubonic plague. Warning signs but no quarantine are mandatory for four other diseases: whooping cough, measles, mumps, and chicken pox.

¹Iowa. Code of Iowa, 1939, Title VII, Ch. 108. p. 419. The regulations for communicable disease control were last revised in Iowa in 1938.

Since the local health officer is responsible for placarding and for enforcing quarantine, its effectiveness depends upon the community's provision for this officer and upon his ability and activity.

The State Planning Board stated that in 90 counties surveyed in 1936-1937, 58 per cent of the townships reported keeping records of communicable disease, leaving over 390,000 persons untouched by this service. All but four townships had appointed a quarantine officer.¹ No reports are available as to how faithfully the quarantine was performed. There have been rumors to the effect that carelessness in quarantine, commonly occurs among the townships. There has been one study indicating inaccurate reporting of cases of communicable diseases. In the Chariton River Basin it was found by the Iowa State Planning Board and the State Department of Health that in 1935 only five per cent of the town township units had local and state records which agreed as to the number of cases of a given communicable disease. Only 18 of the 42 towns and 46 of the 85 townships in the six counties had records of even one case of a communicable disease.²

Direct preventive service for individuals³

At the present time the State Department of Health furnishes to

¹Iowa State Planning Board, op. cit., p. 58.

²Ibid., p. 2.

³Mountin and Flook, op. cit., 56:2235, 2237. In the control of preventable diseases the Department of Veterinary Medicine of Iowa State College, the U.S. Bureau of Animal Husbandry, and the State Department of Agriculture cooperate with the State Department of Health.

public health officials and private physicians, upon request, vaccine for smallpox, toxoid for diphtheria immunization, and typhoid vaccine. Immunization of the public, e.g., for diphtheria, is not required by law, except that in case of epidemics or potential epidemics municipal boards of health may require certification of successful immunization as a requisite for admittance to public buildings and gatherings.¹

Another preventive materium provided by the Department is Howe's ammonial silver nitrate for the prevention of gonorrheal eye infections, furnished to physicians and hospitals. Its use for children at birth is required by law.²

Diagnostic services

Some services provided by public health work in Iowa may be classified as diagnostic. In a sense they are preventive in that detection and treatment of a communicable disease at an early stage may prevent contraction of the disease by other individuals and may prevent a more critical condition of disease for the individuals primarily concerned.

General scope. Diagnostic services available through state public health facilities include: (1) making bacteriological and serological examinations of specimens for any physician in Iowa,³ (2) furnishing to

¹Iowa. Code of Iowa, 1939. Title VII. Ch. 108. p. 419.

²Iowa. Ibid., Ch. 109. p. 425.

³The services are available at the State Hygienic Laboratory and at certain hospitals in Iowa with which special arrangements have been made by the State Department. In addition, some county health units have their own laboratories. Woodbury County is an example. (Iowa State Department of Health, Biennial report 1941/42:22).

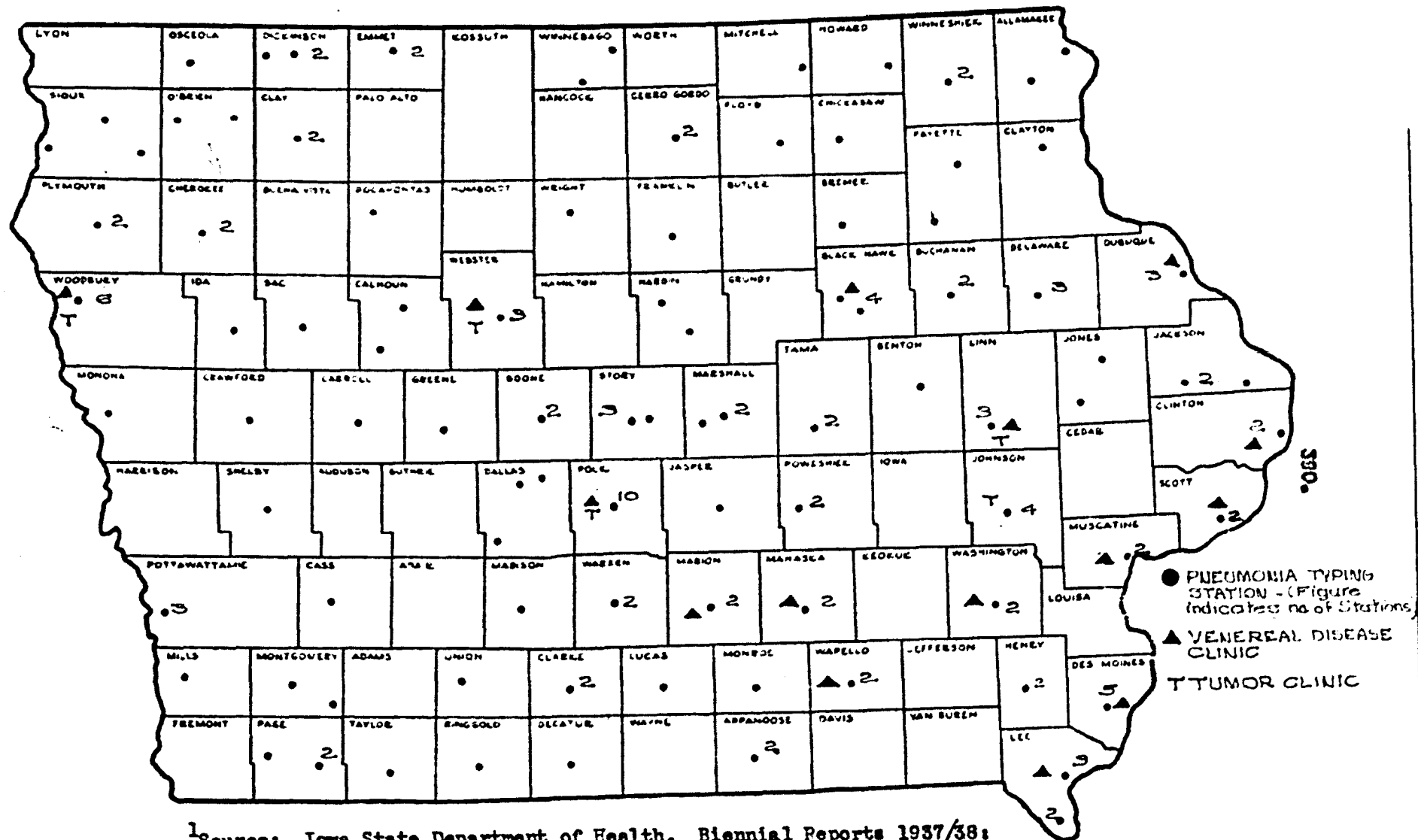
physicians, upon request, of certain biological supplies and equipment for diagnoses of specific diseases¹ and (3) holding of clinics (See Figure 30). Only the latter will be elaborated at present since it serves the people directly whereas the other two relate to the doctor and relate only indirectly to the people.

Tuberculosis case-finding. Two types of tuberculosis case-finding programs are sponsored by the State Department of Health. A case-finding program for rural counties has been in operation since 1937.² The program is financed jointly by the Iowa Tuberculosis Association and the State Department of Health. It is carried out with the approval of the county medical societies. Public health nurses urge members of households in which there have been cases of pulmonary tuberculosis, to have examinations by their physicians. Materials are furnished by the State Department of Health. Positive reactors are X-rayed at some central locality at a given date. The center may be the community hospital or may be a mobile clinic³ sent out by the State Department of Health. The films are serviced at the state office, report being made to the private physicians. In the two-year period July 1, 1940 to June 30, 1942, 112 such X-ray conferences were held in the state. Of these 76 were conducted

¹For diagnosis of some diseases biological material and equipment are provided by the state to physicians who request it. For example, toxin is available for the Schick test for diphtheria and a photofluoroscope unit and miniature films service are available for cooperative work in making examination for tuberculosis in various counties.

²Rural counties are defined by the State Department of Health as those having a population of 30,000 or less.

Figure 30. Location of pneumonia typing stations, venereal disease clinics,
and tumor clinics sponsored by State Department of Health, Iowa, 1940¹



¹Source: Iowa State Department of Health. Biennial Reports 1937/38: 32; 1940/41:55; 1941/42:48. 1938-1940.

Table 68. Tuberculosis case finding surveys,
Iowa, 1938, 1940, 1942¹

Status of program	Number of counties		
	1938	1940	1942
Approved by medical society	42	74	
Surveys completed			
For first time	21	30	5
For second time		33	13
For third time	1		39
For fourth time			14
For fifth time	—	—	2
Total	22	98	73

¹Source: Iowa State Department of Health. Biennial reports:
1937/38:74; 1939/40:51-52; 1941/42:36-37.

The program was established in 1937. The first survey was
in Washington county.

by field nurses from the State Department of Public Health. The other 37 were conducted by county health nurses. As of June 30, 1942, surveys had been held in 73 counties.¹

A second type of tuberculosis case-finding clinic is the one set up in counties for examination of high school pupils. This plan was established the latter part of 1941. With the approval of the county medical society and the various school boards, a photo-fluorograph is used at two or three centers in the county on successive days. The usual number of young people examined a day ranges from 300 to 500. Individuals whose miniature films indicate any pathology are requested to have a tuberculin test and a regular X-ray.

As of June 30, 1942, the program had been carried out in three counties (Tama, Fayette, and Calhoun) with 37 schools participating and 3,219 students being X-rayed, representing approximately 85 per cent of the students enrolled. The plan is to have the program repeated in a county every three years.²

Venereal disease clinics.³ Diagnostic services for venereal diseases include not only serological examinations of specimens submitted for individual doctors, but also clinical services.

¹Iowa State Department of Health. Biennial report 1941/42:35-37. 1942.

²Ibid., p. 38.

³Ibid., 1939/40:56.

The clinics in Iowa sponsored by the State Department of Health, with the exception of the clinics at the State University Hospital, are operated on a part-time basis with services of local physicians offered.

There were, in 1940, 15 venereal disease clinics in the state, each with a licensed physician as director and with one or two follow-up nurses. They are financed in part by federal funds made available by the Venereal Disease Control Act of 1938. Although located in the larger cities of the state these clinics are available to both rural and urban patients.¹ The location of these clinics is shown in Figure 30.

Tumor clinics. The five tumor clinics in Iowa sponsored by the State Department of Health, made possible by federal grants under Title V of the Social Security Act of 1935, are located at the following hospitals: Broadlawns at Des Moines, University at Iowa City, Linn County at Cedar Rapids, Woodbury County at Sioux City, Webster County at Fort Dodge. The personnel of each clinic, selected by the local medical society subject to certain standard qualifications, consists of a pathologist, radiologist, surgeon, and interne with one or more specialists or consultants whose services are voluntary and who meet regularly at a stated time and place each week.² Diagnosis is available to any patient referred by his physician. Each clinic staff consists of a pathologist, radiologist, surgeon, and internist with one or more specialists or consultants whose services are voluntary. The personnel is selected by the local medical

¹Ibid., 1939/40:55.

²Ibid., 1941/42:47-48.

society. Certain standard qualifications are required of personnel and procedure. The clinic is held once a week.

Dental clinics. In 1940, 27 state health departments gave dental examinations to children in school rooms and child-health conferences. The group included was usually confined to pre-school children or those from three to ten years of age. Prophylaxis and corrective services were restricted to the indigent for the most part. A few other states had healthmobiles, dental trailers with clinic equipment. Others had portable equipment set up in a room of the school being served.¹

In 1942 the Woodbury County public health laboratory at Sioux City developed a small dental unit for counting the L. acidophilous of the saliva. Its use is available to the dental profession in northwestern Iowa.²

Pneumonia typing stations. There are 120 pneumonia typing stations in Iowa. These are located in hospitals and clinics throughout the state. In 1938, 77 counties had one or more of these stations.³

Curative services⁴

Curative services represent a new development in public health work. Many of those now available in Iowa have been made possible by the Social

¹Mountin and Flook, op. cit., 57:1267.

²Iowa State Department of Health. Biennial report, 1941/42:66. 1942.

³Ibid., 1937-38:32. 1938.

⁴Curative services for the indigent are excluded for the most part.

Security Act of 1935. There are some indications that the future will bring greater expansion in this direction.

Curative services provided through State public health facilities in Iowa, other than services provided for the needy and other than state hospitals for tuberculosis and for nervous and mental conditions, include (1) services provided at venereal disease and cancer clinics, (2) furnishing of convalescent serum to physicians, and (3) certain nursing services.

Services of clinics. The venereal disease and cancer clinics described earlier provide curative as well as diagnostic services. In addition, funds are available in Iowa from the United States Public Health Service for dental services for patients under treatment in venereal disease clinics.

Furnishing of biological supplies. Since 1937 convalescent serum has been processed by the State Serum Center at the University of Iowa. It is available to all licensed physicians in Iowa without cost upon condition that a complete record of use be submitted to the State Department of Health.¹ It is available for the following diseases: scarlet fever, measles, smallpox, pneumonia, undulant fever, whooping cough, tularemia, Rocky Mountain spotted fever, and poliomyelitis.² In addition normal human serum used in emergency care of patients with shock, is available to Iowa hospitals, in small amounts

¹Iowa State Department of Health. Biennial report. 1937/38:57-60.

²Ibid., 1938/40:43-45, 1940; and 1941/42:15-16, 1942.

of 500 cc. to each hospital.¹ Many other states have similar service.

Nursing services. Some nursing services are provided by county public health nurses. Much of the nursing service provided relates to (1) maternal and infant health and (2) care of crippled children.

Maternal and infant care. Prenatal and post-natal home nursing services were provided by county public health nurses in 66 counties of Iowa in 1940.² About three-fourths of the states provide similar services.³

Pre-natal and post-natal clinics have been provided for demonstration purposes. A special maternity project was set up in 1936 to provide women residents of Washington County with several services, including medical care during the pre-natal period by a physician selected by the mother, instruction by public health nurses during both the pre- and post-natal periods, nursing care at the time of delivery, and medical examination subsequent to delivery. The services were open to all women residents of the county, except that nursing care at time of delivery could be given only to mothers designated by the county social welfare office as unable to finance such services. Funds provided under the Social Security Act gave these services free of charge to the mothers.

In 1936 and 1938 about 80 per cent of the mothers giving birth to live babies in Washington County were given this pre-natal and post-natal service. About 20 per cent were given delivery nursing service. In 1938-40

¹Ibid.

²Ibid., 1939/40:78. The number dropped later, during the war period.

³Mountin and Flock, op. cit., p. 57.

the figures were 90 per cent and 33 per cent respectively. In 1938 about one-half of the expectant mothers had consulted their physicians before the end of the third month.

There are indications of the effectiveness of this demonstration. In the fiscal years 1940-41 and 1941-42 there was only one maternal death in Washington County, making a mortality rate of 1.5 per 1,000 live births in the county, compared to 6.4 for the decade just preceding the establishment of the project. Another service was started in 1939, a home delivery service for indigent mothers in Polk County. The project is conducted cooperatively with the University Hospital of the State University of Iowa and Broadlawn Hospital, Des Moines.

In Iowa, as in approximately three-fifths of the states, infant incubators are available to hospitals by loan from the State Department of Health. In 1940 the 30 counties having full time public health nurses all had infant incubators.¹ In less than a year they had been used for 77 babies. By 1942, 47 counties had incubators.

Services for crippled children. Services for crippled children in Iowa are under the jurisdiction of the State Department of Education and the State University. The former provides grants for convalescent home care through public health nurses. It also makes available nursing service for case-finding and follow-up work and provides braces and other orthopedic appliances. The State University provides hospitalization

¹Ibid., 1939/40:63.

on a free or part pay basis. The two agencies jointly sponsor treatment clinics.¹

Education²

Education in health matters has been a primary goal of the public health program in Iowa since its inception. In some areas much of the work of the State Department of Health has been only educational and advisory. For example, the school sanitation is educational as far as the State Department of Health is concerned: as indicated earlier, sanitary regulation of schools is under the jurisdiction of the State Department of Education.

Educational services for the public include the provision of popularly written bulletins, news releases, slides, movies, classes, demonstrations, conferences, radio talks and lectures. Quarterly bulletins and pamphlets are published by the Department. These are sent to individuals upon request and are used also by classes, both in schools and in adult groups. A "weekly health message" is released for newspapers. It is estimated that these news releases are used by from 100 to 200 newspapers each week. Radio scripts are also provided.³

Both slides and movies are loaned for educational work. In 1942 the State Department of Health had 36 movie films available for free distribution. Some of them were colored sound movies. Several had been

¹Mountin and Flock, op. cit., 57:1195 and 34:1235.

²The nutrition education program has been omitted from the present discussion.

³Iowa State Department of Health. Biennial report, 1941/42:157. 1942.

produced by the Department alone. Others were produced in cooperation with other agencies. One film was produced in conjunction with the State Department of Education.¹ A few were loaned by the United States Public Health Service. Still others were of commercial source. Projectors are available in various district and county health offices. Most of the films are shown in schools or at civic meetings.² However, one film on nutrition, sponsored by the United States Public Health Service and the Metropolitan Life Insurance Company, was shown in commercial theaters.³

There is some direct contact by the staff of the State Department of Health with people in local areas. This contact is both with the general public and with professional groups. In general, staff members of local health units reach the laymen in their communities and members of the State Staff meet with local staff members and professional groups.⁴

¹Ibid., p. 158, 159.

²In the year July 1, 1941 to June 30, 1942, films were shown at 459 meetings to a total audience of 48,600 persons.

³This film was shown in one year in 195 commercial theaters to an audience of 106,791 persons.

⁴Educational activities of the State Department of Health include services for professional workers as well as the public. First of all, members of the State Staff advise county health staff members. There is an advisory public health nurse, for instance, in each health district, who guides the county public health nurses and gives assistance, upon request, to any public health agencies in her district. She assists in the planning and conducting of district group conferences to help keep personnel abreast of new scientific information and procedure.

The State Department of Health sponsors conferences for professional people in private practice. Examples of these professional conferences include the following, sponsored jointly with the State Hygienic Laboratory and the Department of Hygiene and Preventive Medicine of the

County public health nurses have adult classes in health, largely in home nursing and in maternal and infant care. They also visit homes, counselling in health matters and demonstrating care of the sick. Particular attention is given to pre-natal and post-natal care, care of crippled children, and tuberculosis case-finding in families of persons having the disease. In addition, the public health nurse works with the schools. At the present time a large part of the work with the schools is consultation with the teachers in health education. Formerly the nurses did most of the actual teaching of classes.

Among the educational activities of the State Department of Health has been a state-wide immunization program in which several organizations

(Footnote continued)

State University of Iowa: (1) two pneumonia typing courses (reaching 61 doctors, December 1940 and November, 1941) (2) a thick-film diagnosis of malaria course, given by the United States Public Health Service for representatives from Iowa, Illinois, and Wisconsin (only 10 doctors); and (3) a brucellosis forum at Council Bluffs in June, 1942, in cooperation with the Pottawattamie County Medical Society.

Speakers are furnished for conferences and roundtable discussions with local physicians. In 1942 such discussions were held on obstetrical and pediatric aspects of maternal and child health. The University Hospital also provides facilities for a week's intensive training in obstetrics for practicing physicians. Training is also provided for dentists. In April, 1942, a two-week lecture course in dental health was held in 10 Iowa cities. Clinicians were provided for lectures and demonstrations to district dental societies, being held in 7 communities in 1942, with an attendance of 1,088 dentists. (Iowa State Department of Health. Biennial report, 1941/42:66, 65, 73, 119.)

Ibid. p. 58.

participated. Those cooperating included (1) American Legion Auxiliary, (2) Congress of the Parent and Teachers Association, (3) Farm Bureau Federation, (4) Federation of Women's Clubs, (5) State Department of Public Instruction, (6) State Medical Society, and (7) State Osteopathic Society.¹

Educational programs of the State Department of Health which have particular reference to rural communities include (1) work of the county public health nurse as described above and (2) dental education in rural schools. In 1940-41 rural schools in all but 11 counties of Iowa took part in the dental health education program of the State Department of Public Health, in 1941-42 in all but eight, in 1942-43 in all but 12. In only four counties did the rural schools not take part in the program any of the three years.²

Some Factors Affecting Supply of Public Health Services

The most important factor favorable to increasing the supply of public health services in rural communities is the growing interest in the provision of medical and allied services. With active interest in the part of farm organizations, such as is reflected in discussion groups of Iowa Farm Bureau Federation, together with the interest of the State Department of Health in furthering local public activities and possibly with the aid of the federal government, public health services in rural areas may be expected to expand further.

¹Ibid., p. 62.

²Ibid., 1943/44:50-60. 1944.

There are several factors which impede the supply of public health facilities in rural Iowa. One doubtless is lack of recognition of the need for them, a tendency to "take for granted" the situation as it is and to accept conditions as they are.

Dispersion of authority over public health activities is a second factor affecting their supply in a negative direction. With many small local jurisdictions it is difficult for a unified program of public health services to be organized. The system of county or multi-county health districts proposed by the State Health Department would help to overcome this difficulty.

Low density of population, which ties in with the above factor, and with the factor of income, is another impediment to the provision of public health services. Scattered population means greater unwieldiness in organization of public health services. It also is likely to mean increased per capita costs for many services. For example, there is the extra transportation cost and loss of time in travelling on the part of members of the public health staff. There is likely to be greater cost in providing many small public water supply systems in contrast to one large system.

In some areas low community income is a factor impeding the provision of public health activities as discussed in Part II. Solution of this problem may lie merely in better organization for public health work as suggested in the county and district health plan. It may lie in the provision of credit, and in some cases, grants by state or federal government.

The factor of low income is not, however, one which particularly affects public health services in Iowa.

Summary and Conclusions

Public health service in general includes those services which affect the environment and which in order to be effective require action by the group as a whole rather than the individual family. It has expanded from a policing and regulatory type of action relating to sanitation and the control of a few specific contagious diseases to a broad program of preventive work plus some direct diagnostic and therapeutic services for individuals.

In Iowa, each township and municipality is a single health jurisdiction which has authority over such matters as vital statistics, quarantine, and sanitation. There are four county health units. In addition the state has been divided into 10 health districts with district health officers, nurses, and technicians. Activities of these public health workers are largely advisory and educational, although some individuals receive direct diagnostic and therapeutic services. Regulatory power lies, however, with local boards of health.

The small local boards of health vary in effectiveness. In many cases, they do not even appoint the health officer or hold the annual meetings required by law. In others, the health officers receive very little reimbursement or none. The effectiveness of the local health work seems to vary directly with the size of the community, insofar as effec-

tiveness is reflected by appointment of health officer and the number of other health workers employed, and the percentage of the population served.

Proposals have been made for replacing the many small, ineffective townships and municipal boards of health by one county, or in some areas of low population density, multi-county boards having jurisdiction over the entire area. Such consolidation is endorsed by the Iowa State Department of Health and by the American Public Health Association. A bill to bring about such consolidation in Iowa was defeated in The General Assembly in 1945.

Among State Departments in Iowa the State Department of Health has major jurisdiction over health matters and employs most of the personnel concerned with health services. Its staff members include medical directors, public health nurses, public health engineers, laboratory and other technicians, as well as clerical workers. There are clinics staffed by volunteers from physicians in private practice. Among these are 15 venereal disease clinics, five cancer clinics, and 150 pneumonia typing stations.

Of the funds administered by the State for public health service in 1940, approximately one-half was appropriated by the State of Iowa, nearly a third by local governmental bodies, and about seven per cent by the federal government. The rest came from such sources as special fees, licenses and donations. Less came from state funds and more from local funds than was true for the United States in general. For federal funds the proportion was about the same as for the nation as a whole.

Expenditures by local governments for health purposes indicate that farm people in Iowa receive somewhat fewer public health services than do urban people and those in small towns receive less than do those in large places. For example, nearly all of the jurisdictions having no expenditures for public health services in 1936 were in places of less than 2,500 in population. The per capita expenditures in places having services varied directly with the size of the place.

The lower expenditure for health in rural areas and small towns is not, however, due to less need for the services. Expenditures for health services provided from state and federal funds indicate that Iowans receive about the same as the average for the nation but less than the median. That is, thirty-five states have a higher per capita expenditure for public health services than does Iowa. The per capita expenditure by state agencies for public health services in Iowa in 1940 is estimated at \$1.88.

The trend in the organization of public health service seems to be toward county or multi-county health units, in order to maximize efficiency in use of resources of equipment and staff and in order to enable more communities to have adequate public health service. The trend in types of activities is in the expansion of direct preventive, diagnostic, and therapeutic services to individuals, and possibly in the provision of diagnostic facilities to individual physicians. There is also a trend toward federal and state grants for public health services with particular respect to rural areas.

Despite the fact that public health services have expanded in Iowa since the mid-thirties and despite the excellent types of services provided in many respects there is room for continued improvement. Iowa ranks with the average state in public health services in types of services provided. It is below three-fourths of the states in expenditures per capita. The number of health workers also falls below recommended standards. It is probable that public health agencies can aid still more the preventive and early diagnostic services which will alleviate much of the poor health now prevalent.

It would seem that in some areas the State Department of Health should have more authority than it does at present. For example, its activities in school sanitation might well be more than advisory. Although there is close cooperation between the State Department of Health and State Department of Public Instruction it would seem desirable that the Department of Health have more direct control over school sanitation. Other areas in which jurisdiction of the State Department of Health, other than advisory, might be of value are: water supply and sewage disposal systems; housing in rural areas; regulation of hospitals and related institutions; sanitation of milk and food supply in small communities.

The establishment of county and/or district health units to replace small, ineffective township and municipal boards of health would improve public health services. Immediate results which might be expected from such a consolidation are: more complete and more accurate records of vital statistics; more effective quarantine, better

rural sanitation; greater coordination of health services or in many cases the introduction of public health services for the first time. Of course, in many areas of Iowa the cost of increased services would be greater than present ineffective activities. However, the cost would not be prohibitive. In a few parts of the state grants from state or federal sources might be necessary. There already have been some grants of this nature.

Among increased personnel needed would be the following: a full-time medical director for each unit; clerical help; a public health engineer and probably one assistant; a public health nurse with one or two assistants to be added later; a milk inspector.

Expansion of laboratory services doubtless will continue. As a long-range goal might be recommended the provision of diagnostic equipment and consultation service in each county or district unit. It is unlikely that this will develop in the near future. However, the pneumonia typing stations, cancer clinics, venereal disease clinics, and tuberculosis case-finding facilities indicate a trend in this direction. It may well be that eventually hospital, group clinic, and public health services within a community will be coordinated much more than they are at the present time.

Before further expansion of direct services for individuals by public health agencies is recommended it would be well to examine other possibilities, in particular possible methods of paying for medical and allied services and organization of private supplies of medical services.

It may be that public health services by governmental units should stay within the limits of broad preventive programs, and that direct services to individuals should stay within the framework of non-governmental enterprise, with aid from the government in some areas. Greater coordination among all medical and allied services doubtless is a desirable goal for the future.

The community health center with integration between private and public health facilities which has been proposed and which is discussed in Part V may be the answer to provision of better medical and allied services in rural areas. There is need for integration not only of agencies offering direct medical and allied services but also of agencies and activities which are educational and regulatory.

PART IV. PAYING FOR MEDICAL AND ALLIED
HEALTH SERVICES

PAYING FOR MEDICAL AND ALLIED HEALTH SERVICES

The charges for medical and allied health services and the sources of funds for paying for them are important in a consideration of the supply and demand for the services. Not all medical and allied services used by consumers are financed by their own income.

This chapter considers the charges and the general sources of funds for paying for the services. In addition, there is a section on the maintenance of hospitals. Paying for public health services has been discussed in Part IV and will not be considered here. Payments by individuals for medical services are discussed in Part II. Insurance as related to paying for medical care and allied health services is discussed in a later chapter. In this chapter are discussed, for the most part, non-governmental sources of funds.

Price of Services of Physicians and Hospitals

The fee-for-service plan has been used for the most part in setting of price of services of physicians and hospitals. Several facts about this system seem pertinent to this discussion: (1) price as a factor affecting demand for medical and allied services; (2) effect of the fee-for-service system on the nature of services made available; (3) price-setting process; (4) prices actually charged; and (5) extension of credit.

Price as a factor affecting demand for medical and allied services

Price as a factor affecting the demand for medical and allied health services, has three aspects: (a) high price along with low income as an aspect of inability to pay, (b) price as a psychological factor, and (3) price as a factor affecting the provision of other commodities.

High price along with low income as an aspect of inability to pay.

It is evident that price is a factor impeding the use of medical and allied services. For example, when the Farm Security pre-payment plan went into effect, it developed that many places had a larger amount of services called for than was anticipated. This is doubtless evidence that there was a large backlog of need due to cost of services. When people were able to obtain services at lower cost there was unexpected increase in demand for the services.

Experience of some medical society prepayment plans shows the same effect. When the Michigan Physicians' Service began there was a sudden increased demand for medical services, which was interpreted by some people as misuse of benefits but which, in reality, doubtless represented backlog of needed medical services which people now felt they could afford.

Evidence of this nature indicates need for analysis of costs and for the development of some system whereby families can pay for adequate medical and allied health services.

Psychological attitude toward debt. Important in the demand for medical and allied health services is not only the cost itself but the

psychological attitude of the consumer toward debt. There is a psychological resistance to incurring a charge when it may not seem necessary. If the need is not obvious no visit to a physician is made. Even though the need for treatment is recognized there may be hesitancy to accept debt or to accept free services which amount to charity. That is to say, even though credit facilities may be available from physicians, many people hesitate to accept them and therefore postpone needed medical care.

The seriousness of this psychological factor is not clearly demonstrated. There is no doubt, however, that it is extremely significant. It is especially important among farmers who are an entrepreneurial group and tend to be independent.

Price as a factor affecting provision of other commodities. For families of moderate or low income, the cost incurred for medical and allied health services affects the provision of other goods and services. Despite the large amount of free treatment at low costs, the charges actually paid for medical service by low income families may impair the provision of other services, such as food, shelter and clothing, which in turn affect the health of the family.

Effect of fee-for-service system on the nature of services made available

The fee-for-service system no doubt tends to limit the extent of preventive services. People tend in general to postpone all but very necessary expenditures. It is likely that with the total cost of preventive

and curative services spread over a large group, and each family's share prepaid, more services would be available and utilized. It is likely that more of the preventive services in particular would be demanded. This spreading of costs may be accomplished in two ways: (1) the provision of more services through public health service and (2) expansion of prepayment plans on the insurance principle.

The price-setting process

Several factors other than competition enter into the determination of the fees and into the continuation of the fee-for-service method of price-setting. Two major factors appear to be (a) agreement among doctors, and (b) price discrimination based on ability to pay. Price competition apparently enters into the situation very little.

Agreement, formal or informal, among physicians. Price competition as a rule does not enter into the setting of fees. The attempts of local professional groups to set fixed charges for various services often appear to be more for the purpose of eliminating price competition than to be the result of relative costs. So far no technique has been devised whereby the financial value of various services, or the same type of service as given by various physicians, can be measured. The higher fees charged by specialists are, of course, due to greater cost of training and equipment. They are due also to scarcity of supply of personnel for a specific type of service. Custom plays an important role in the determination of fees. It is likely that agreement among physicians is important, either tacit, implicit agreement gradually reinforced by custom or explicit agreement among the physicians in a locality.

According to the conclusions of a study by the American Medical Association, fees are set largely by custom and apparently are relatively stable within a community over a period of years. A schedule of fees collected by the Association for periods from ten to forty years indicated that the median fees for given communities remain the same over a period of time. The American Medical Association reports, "In spite of wide and almost inexplicable variation between communities, the charges in each locality tend to become fixed around certain well recognized medians."¹ Its study indicated that for some common services such as home and office visits, obstetric services, and minor services there was more similarity in fees between communities than for less common services. Fees for some types of service were found to be three or four times as much in some states as in others.²

Price discrimination. The physician's estimate of the patient's ability to pay is an important factor in the setting of the price for the service. Although the median fee in a community tends to be somewhat stable, individual fees fluctuate widely. The sliding scale fee is used to adjust the charge to the income of the patient. High fees are charged to wealthy patients, moderate fees to those with middle income, and low or no fees to the lower income group.

On the whole, price discrimination of this type may be a good thing under the present organization of medical and allied health services. That is, it may be well to have high income families paying proportionately more for services and low income families paying proportionately less.

¹American Medical Association. Bureau of Medical Economics. An introduction to medical economics. 2nd ed. Chicago, The Association. 1938. p. 35.

There are several objections to this method of price setting. From the standpoint of the consumer this question arises: how can individual physicians investigate the patient's circumstances? How can he know whether the fee is "fair"? Some persons feel that a certain element of "charging what the traffic will bear" enters into the picture to too large an extent. There is in addition the aspect of charity which the independent family of low income hesitates to accept. The free service which physicians, unlike tradesmen or other professional groups, are compelled by tradition and humanity to give may mean that the patients who can pay more are charged higher fees than they might otherwise be charged. It would seem that a system is unsound which involves free service for the indigent and exorbitant charges for those who can pay.

From the standpoint of the physician, the plan may be satisfactory for those serving wealthy patients, whose high payments help balance the low, but the average practitioner's income may be lowered unduly by a thorough adjustment of charges to the ability of his patients to pay. It may be that this system is less well suited, in these times, to modern complex society with greater mobility among patients and physicians and larger practices than formerly. Many believe that some other plan of payment in which the physician's income is more certain should be devised.

Prices actually charged

The sizes of fees for specific medical and allied services are not always clear in expenditure studies. Variations may be due to: (1) attempt

to adjust fees to ability to pay, (2) selection by the families of physicians who charge less, and (3) type of community.

Data from the Consumer Purchase Study indicate some tendency for physicians in rural communities to establish a uniform rate for calls regardless of income. The average expenditures for office and home calls for families with income below \$2,500 were fairly close to the average cost for these calls for all families; the average expenditures above the income groups from \$2,500 to \$3,999 were, however, slightly higher. Among 3,000 village families of the Middle Atlantic and North Central regions, the average expenditures per office call in the \$250-\$499 group, was \$1.18; for those with incomes of \$1,000-\$1,299, \$1.44; for those with incomes of \$2,000-\$2,499, \$1.44. Higher rates were charged for home calls than for office calls. The average expenditure for all village families was \$2.39 for home calls and \$1.54 for office calls (See Table 69).

Among slightly more than 2,200 farm families in Pennsylvania and Ohio the average expenditure for home calls was slightly less than for village families, \$1.51; for home calls the expenditure per call was slightly more than among village families, \$2.57. There was little difference in average expenditures among families of various income levels under \$4,000 (See Table 69).

Average expenditures per day of hospitalization showed more variations with income than did expenditures for physicians' calls. For village families the average costs per day rose irregularly from \$3.42 for families in the income group \$250-\$499 to \$8.42 for those in the

income group \$3,000-\$3,999. For farm families the rise was similar, from \$3.73 to \$6.12. The average cost per day for village families was \$5.65 and for farm families \$5.44 (See Table 69).

It may be that these expenditures listed for home and office calls included more than services of physicians, e.g., including medicines as well, and that hospitalization services may have varied somewhat in content, some including services of physicians and others not. It also may be that in some cases the full amount charged was not paid.

In Lewis County, Missouri, Almack¹ found that basic day rates for home calls by physicians in 1936 ranged from \$1.00 to \$2.00. Office rates were somewhat less. Night rates were higher, going up to \$4.00. Mileage costs were charged in addition. Distance was an important factor in the determination of final charges to be made for home calls. A definite mileage rate had been agreed upon by the local medical society. However, most physicians modified the rates when considerable distance was involved because otherwise home calls would have been prohibitive to many families. Weather, season, and condition of roads were not reported by the physicians as important factors affecting their charges for medical services.

Data on specific charges in Iowa communities for specific medical and allied health services or amounts actually paid for them are not readily available. There is a place for additional research.

It is likely that the recent tendency has been to reduce variations for specific fees, due to (1) more impersonal relations between physicians and patients in larger communities, (2) greater mobility of both physicians

¹ Almack, op. cit., p. 7-9.

Table 69. Average expenditures per office and home call of physician and per day of hospitalization for certain farm and village families, United States, 1935-1936

Family income	Village families (North Central and Middle Atlantic)				Farm families (Pennsylvania and Ohio)			
	1		Average expenditure		4		Average expenditure	
	No. of families	Physicians' calls ³	Per day of hospitalization ⁵	of	No. of families	Physicians' calls ⁵	Per day of hospitalization ⁶	of
\$ 0-249					21	\$ 1.04	\$ 2.12	\$ --
250-499	84	\$ 1.18	\$ 2.75	\$ 3.42	100	1.77	3.15	3.73
500-749	360	1.60	2.42	4.97	209	1.39	2.31	5.22
750-999	572	1.38	2.23	4.17	304	1.20	3.23	4.38
1,000-1,249	575	1.44	2.39	5.00	294	1.20	2.78	4.85
1,250-1,449	461	1.29	2.43	6.52	312	1.25	2.27	5.14
1,500-1,749	283	1.75	2.05	4.99	267	1.20	2.75	5.06
1,750-1,999	235	1.58	2.15	5.99	197	1.38	2.52	6.66
2,000-2,499	253	1.44	2.22	6.33	254	1.36	2.51	6.22
2,500-2,999	118	2.38	2.80	6.18	135	1.57	2.57	6.69
3,000-3,999	70	2.15	4.69	8.42	116	1.47	2.44	6.12
4,000-4,999					26	1.13	2.33	--
5,000-9,999					19	1.03	2.14	7.00
Total income	3042	1.54	2.59	5.65	2254	1.31	2.57	5.44

¹ Hollingsworth, Helen, et al. Family expenditures for medical care: five regions. U.S. Dept. of Agr. Misc. Pub. 402. 1941, p. 12.

² Ibid., p. 13.

³ Ibid., p. 17.

⁴ Ibid., p. 39.

⁵ Ibid., p. 40.

⁶ Ibid., p. 44.

⁷ Includes a few families with incomes above highest class shown.

and patients, (3) development of medical relief administered by the county or municipality, and (4) failure to collect bills in full.

Extension of credit

The fee-for-service system has been accompanied by liberal credit. Physicians, particularly general practitioners, are accustomed to operating on a credit basis. Provision of credit is one way in which medical and allied health services may be provided to meet emergencies and to meet the needs of low income families. In rural areas it may be necessary because of the seasonal nature of farm income.

However, not all of the medical and hospital bills are paid. According to the American Medical Association, from 20 to 40 per cent of the charges by general physicians are not collected.¹ In Lewis County, Missouri, most physicians reported in 1939 that they gave credit. The percentage of work for which no payment was collected ranged from three to sixty-five. It has been suggested that hospitals reserve five per cent of book income as protection against debtors who fail to meet their obligations.²

In 1944, the Massachusetts Bankers' Association inaugurated a plan for the extension of credit to consumers for the payment of medical and allied health services. It is called the Blue Triangle Plan. It is a post-

¹ American Medical Association, Bureau of Medical Economics, Introduction to medical economics, p. 74.

² Almack, op. cit., p. 86-87.

payment plan which provides for the payment on the installment plan of health expenses after the obligation for them has been incurred. Loan arrangements are completed between patient and physician subject to the bank's credit approval. The bank pays the bill to the physician; the patient pays the loan plus charges in six to twelve monthly payments. The plan is sponsored by the American Banking Association.¹

Source of Funds for Medical and Allied Health Services

Public health services for the most part are paid from public funds.² It is, however, important to note the sources of funds for financing the supply of physicians and hospitals and the relative importance of different sources with special reference to rural-urban differences.

Consumer expenditures are by far the most important source of funds for the services of physicians and hospitals. In addition must be included (1) philanthropy and (2) taxation.

Philanthropy

Free services to individuals provided in a spirit of charity have long been familiar. These may be contributed by physicians themselves, by individuals or groups such as church, fraternal, or civic organizations

¹ a. Mack, John B. Banks, merchandise health. Printers Ink 210, no. 11: 90-91. 1945.

b. Mack, John B. Blue triangle gets under way. Banking 37; no. 2: 43-44. 1945.

c. Gwinn, John S., Exec. Sec'y. of Mass. Bankers' Assoc. Boston, Mass. Information on blue triangle plan. Private communication. 1945.

² See p. 340-341 for further discussion of other sources of funds and of amounts paid.

who pay for the services for needy families. The obligation as of the physician is stated thus in the Principles of Ethics of the American Medical Association: "The poverty of a patient and the mutual professional obligation of physicians should command the gratuitous services of the physician."¹ A considerable amount of time and supplies are given by physicians with no expectation of monetary reimbursement. Still other unintentional gifts are made by the fact that not all fees are collected, as discussed earlier.

There is doubt in the minds of many people that free services by physicians, despite the generosity and good intentions involved, is desirable. Should physicians be expected to give free services? Would charity be expected or necessary if a different way were devised for paying for services? These are questions which need to be answered. The same questions may well be asked of services given to families by gift or philanthropy. Admirable as has been the purpose of physicians and philanthropists and valuable as have been the services provided, the question still remains as to whether charity is the best method for securing the services.

Endowment by individual philanthropists and by philanthropic organizations have done much good in providing medical and allied services. In many cases services have been made available to families who might not have had access to them or been able to afford them. For example, many clinics have been established by philanthropy. In addition, valuable research and experimentation have been made possible which might not otherwise have taken place. The latter is the most important contribution

¹American Medical Association, Bureau of Medical Economics, An introduction to medical economics, p. 37.

Several attempts have been made by philanthropic groups to make better medical care available to rural people by means of educational programs. Very often the method of a subsidized demonstration unit has been used. A new trend lies in giving assistance and guidance to the community in planning and guiding a program for which community members are responsible.

In this section are considered such contributions as they relate to the organization of the diagnostic and curative services. Research in the area of the content of medical and allied knowledge is omitted.

Development of free or low-cost clinics. Private endowments have made possible the establishment of free or low cost clinics. These have been established in urban areas. Municipal clinics for the indigent have been established also. For example, during the twenties there was substantial growth in maternal and child health centers. Clinics provided by philanthropic organization, together with those provided by municipalities, have made it possible for many low income urban families to obtain medical and allied services.

A comparable development of clinics in rural areas has not occurred. A few examples may be cited. The W.K. Kellogg Foundation, working through rural schools, has made possible some clinics for pre-school and school children. The expansion of county health units may indirectly be the result of an attempt to provide in rural areas the services available in urban centers.¹

¹See also p. 330-336.

Development of cooperative and community plans. Philanthropic organizations have sponsored cooperative plans, community plans and public health units in rural communities. These have been experimental in nature and for demonstration purposes.

The W.K. Kellogg Foundation has sponsored a cooperative health program with seven rural counties in southwestern Michigan. Activities range from immunisation of pre-school children to providing educational opportunities for school teachers, school board members, parents, physicians, dentists, ministers, nurses, hospital administrators, laboratory technicians, record librarians, and other personnel. Emphasis is placed on improving the health of the pre-school child.

Recognizing that one important weakness in medical care is the absence of adequate diagnostic facilities, the Kellogg Foundation has emphasized, in its program of providing hospital care in smaller towns and rural areas, the establishment of well equipped and adequately staffed X-ray departments and clinical laboratories in modern hospitals outside the larger centers of population. Specialists in radiology and pathology supervise the services, making periodic visits to the departments and attending medical staff meetings. The whole program centers around the needs of the family physician in caring for his own patients.

The communities aim at closer coordination of the activities of the county health departments and hospitals in a program which will provide the people with health services far beyond the scope of activities of the usual small hospital. It has been demonstrated in communities, among them South Haven, Michigan, that these services can be self-supporting once

they have been well established. The Kellogg Foundation has been instrumental in the establishment of ten cooperating small hospitals in a seven-county community health project in Michigan.

The Farm Foundation has a different approach to encouragement of the provision of adequate medical and allied services. It has sponsored programs aimed at getting rural people together to discuss and plan cooperatively the provision of the health services they need. The organization follows the policy of providing guidance to rural families in analyzing their own health and medical needs and in planning ways to meet those needs by community organization. Community responsibility must be assumed by the members of the community. The contribution of the Farm Foundation lies in promoting the work and in offering guidance. The Foundation started its program in Nebraska, working in cooperation with the Extension Service of the State College. The Sand Hills Health Association of Thedford, Nebraska, is one result of this activity. A cooperative was organized providing the services of a physician and a public health nurse.

The activities of the Bingham Associates in rural New England are discussed in the following chapter. Demonstration public health units have been established by philanthropic organizations. The Milbank Memorial Fund, for instance, made possible demonstration public health units in some

¹Sarvis, Lewis J. and Davis, Graham L. South Haven hospital. Hospitals. (Reprint). Sept. 1943.

thirteen rural communities. The Cattaraugus County Public Health Unit in New York State, financed from 1923 through 1939 by the Fund, is one example. The Julius Rosenwald Fund has done similar work in the South.

Taxation

Payment by the public, through taxation, has long been a method of paying for medical and allied services for the indigent. For some time this method has been used for certain preventive public health services. Recently there has been an expansion of the type and volume of services thus provided. Various proposals have been made for such service. Possibly the most radical has been the stand of the Farmers' Union, which would go so far as to have common medical and allied services provided free as are certain educational services.

Taxation involves compulsory collection. Payment may be according to ability and the benefits distributed according to need, although this is not usually the case. Payment may be by those who will benefit from the service, such as the tax paid under Social Service tax, whereby employees in certain occupations pay three per cent of their incomes toward the Social Security fund. Here the fund is augmented by general tax collection.

Among the services provided by taxation are the public health work discussed in the preceding chapter, care for the indigent, and services such as those proposed in the Wagner-Murray-Dingell bill.

Maintenance of Hospitals

Hospitals are maintained by payment by patients, the state, and philanthropy. According to an investigation by the United States Public Health Service, there is considerable variation among the states in the proportion of support from each source. In Iowa, in 1935, 70.3 per cent of the payments to registered general and special¹ hospital care was made by patients, 23.9 per cent by taxes, and 5.8 per cent were from other sources. On the other hand, in Massachusetts 55.9 per cent were made by patients and only 21.2 by taxes. In Alabama only one per cent of the support of hospitals came from taxes. For the United States as a whole, 61.8 per cent of the payment came from patients, 24.3 per cent from taxes, and 13.9 per cent from other sources.²

In registered mental and tuberculosis hospitals, a much larger proportion is paid by the State. In Iowa in 1935, 77 per cent of the payments to mental hospitals was from taxes, 13.8 per cent from patients, and 8.5 per cent from other sources. In the United States 81.2 was paid from taxes, 16.3 per cent by patients, and 8.5 per cent from other sources.³ In tuberculosis hospitals the percentages in Iowa were 73.0 per cent paid from taxes, 27 per cent by patients; in the United States 77.8 per cent from taxes, 14.3 per cent from patients, and 7.9 per cent from other sources.⁴

¹Other than mental and tuberculosis hospitals, infirmary units, institutions and all other hospitals under federal control.

²Pennell, Mountin, and Pearson, Business census of hospitals, p. 19.

³Ibid., p. 20.

⁴Ibid., p. 21.

Annual payments per capita for general and allied special hospitals were: for Iowa, \$2.38; for Massachusetts, \$7.05; for Alabama, \$1.08. For the United States the average was \$3.37. The range was from \$7.05 in Massachusetts to \$0.67 in Mississippi.¹

For mental hospitals, the average annual payment per capita in Iowa in 1950 was \$0.84 as contrasted to \$1.16 per capita for the United States as a whole. The range among the states was from \$3.00 per capita in Massachusetts to \$0.28 in Mississippi.² For tuberculosis hospitals the annual expenditure in Iowa was \$0.17 per capita; in the United States \$0.39. The range among the states was from \$1.32 in Colorado to \$0.05 in Alabama.³

Summary and Conclusions

The high and unpredictable cost of medical services is, to many families, a deterrent to obtaining adequate services. It is likely that lower prices, known in advance so that families can plan expenditures, would result in increased use of facilities. This is a factor relating not only to ability to pay but to a psychological attitude toward debt. It is likely too, that lower, known prices, particularly if pre-paid, would result in increased use of preventive services.

Prices under the fee-for-service system are set largely by agreement among the profession and by custom. Price competition does not seem to

¹Ibid., p. 15.

²Ibid., p. 20.

³Ibid., p. 21.

be a factor. Charges vary somewhat according to physicians' estimate of ability to pay. Actual amounts paid are not always the same as amounts charged. There is a high degree of extension of credit, much free work, and fairly poor collection of charges. Ethical, humane, and personal relationship factors enter into the picture in a different way for health services from what is true for many other types of services.

Funds for medical care and allied health services come in varying proportions directly from the consumers themselves and indirectly from philanthropy and taxation. Funds for service of physicians and hospitals are, for the most part, paid by the patients themselves, although some come from philanthropy. It is to be noted that the payment of such services through taxation is increasing with the expansion of public health work. Public health services as defined in a narrow sense are financed almost entirely by taxation.

There is relatively little specific information on prices of services of physicians in Iowa and amounts actually received by physicians. Here is a place for further research. There is needed also a study of the costs of a well rounded program of direct medical care and of public health service.

SOME BEGINNINGS IN GROUPING OF MEDICAL AND ALLIED HEALTH SERVICES

With increased specialization of medical and allied health services has come realization that possibly more adequate service can be supplied to families by group practice and that such organization may be of benefit both to patients and to physicians. Proposals have been made by professional, lay and government groups. Some experiments have been made. Most of the grouping of medical and allied services has been in urban areas but a few beginnings have been made in rural areas. In some cases the groups have been formed in connection with clinics; in others, the groups have been centered in hospitals. Some have operated on a prepayment or insurance plan; others on a fee-for-service or modified fee-for-service plan.

Groupings of medical and allied health services discussed in this chapter are classified as: (1) producer-sponsored clinics, (2) consumer-sponsored cooperative groups, (3) community health centers, (4) integrated hospital systems, and (5) Canadian municipal doctor plan. These are discussed briefly in this chapter as to their general forms and advantages and disadvantages as related to rural areas in Iowa. Those five types are described and an attempt is made to appraise them with reference to their applicability to rural areas in Iowa.

It should be pointed out that the prepayment plans, whether producer or consumer sponsored, use the insurance principle. They are included in

this chapter rather than in the following chapter on insurance as related to medical and allied services because they are similar in organization to the group organized on a fee-for-service basis. They are small, unit groups. The plans included in the following chapter are on a broader scale.

Producer-sponsored Clinics

Clinics in the United States are of two general classes. One is sponsored by municipalities or philanthropic groups for the benefit of needy persons as described in the preceding chapter. It was noted in Part III that public health services have tended to expand, to include clinics for a larger group of people. These are clinics for preventive as well as curative treatment.

The second class of clinics includes those organized by a group of physicians for purposes of greater efficiency in carrying on private practice. The past two decades have witnessed the development of physicians grouped in clinics or about a hospital center. Goldman states that in the United States approximately 400 private group clinics were believed to be in operation in 1942 as against about 150 in 1930.¹ It is on this type of clinic that the present discussion centers.

Patterns of producer-sponsored clinics

There are two general patterns of private group clinics. One is

¹Goldmann, Franz. Public medical care. New York, Columbia Univ. Press. 1945. p. 62.

an informal grouping of physicians who have joint waiting rooms and equipment and who jointly employ assistants in order to reduce costs but who carry on separately their individual practices. The doctors in the McFarland Medical Building, Ames, Iowa, illustrate this plan.

In the other pattern several physicians pool their resources in maintaining offices, laboratories, and equipment. They also pool the total income of the clinic, each physician receiving a salary from the pool. Most of the clinics operate on a fee-for-service basis. Some, however, have prepayment plans.

Producer-sponsored groups operating on fee-for-service basis

As a rule these clinics are located in large centers of population. Mayo Brothers Clinic of Rochester, Minnesota, organized in 1887, is an example. However, there are a few clinics of this pattern in rural areas, including one in Iowa, described below.

Clinic-centered group. There are a few examples of group practice in small towns or rural areas centered around a clinic of which the following may be noted.

Rolfe Memorial Clinic, Waverly, Iowa. The Rolfe Memorial Clinic, Waverly, Iowa, was established by a group of five physicians, each of whom has specialized in a different field. Specialties include internal medicine, surgery, anaesthesia, obstetrics and pediatrics, and otolaryngology and ophthalmology.

The organization was started about 1938 but not completed until 1941. It is organized in a profit-sharing plan as far as the professional staff is concerned, i.e., the physicians do not receive a guaranteed salary.

Nurses and other staff members employed by the clinic are paid a definite salary, with a share in the profits at the end of the year.

Patients visit physicians in the clinic just as they would in private practice, but when there is a special requirement the services of the other physicians are used. Much of the work is done at the clinic but some is done at St. Joseph's Mercy Hospital.

Payments are made to the clinic rather than to individual physicians. There is a business manager who takes care of accounts and collection. Charges are made on a fee-for-service basis, the schedule being in general the one suggested by the Iowa State Medical Society.¹

Laconia Clinic, Laconia, New Hampshire. The Laconia Clinic is located in a town of around 13,500 in population. It has a staff of six physicians. At the time the clinic was organized, in 1938, the various facilities which were owned by the individual physicians were pooled. Since then all equipment and supplies have been the property of the clinic. Assistants are employed by the clinic.

When the clinic was organized each physician accepted from the clinic a base pay of 80 per cent of his average earnings for the previous three years. All expenses except for his automobile and home telephone are paid by the clinic. At the end of each year earnings above expenses are divided equally among the members. In addition, each member has time each year for post-graduate study. Patients pay the clinic rather than the physician.

¹Rathe, H.W. Waverly, Iowa. Information on Rolfe Memorial Clinic. Private communication. 1945.

There is no prepayment plan, although the clinic cooperates with the voluntary insurance plan of the State of New Hampshire Medical Association covering surgical and medical practice. The patients are charged according to ability to pay. An attempt is made to have the physician-patient relationship remain the same as that of an individual family physician-patient relationship.¹

Hospital-centered group. There are also a few groups of physicians in small towns whose practices are centered around a hospital.

Hitchcock Clinic. The Hitchcock Clinic of Hanover, New Hampshire, illustrates the grouping of physicians around a hospital center. The clinic was established in 1927. The members were the five physicians on the staff of the Mary Hitchcock Memorial Hospital; in 1944 there were 17 on the staff. This clinic is different from the one described above in that it works closely with the college medical school at Dartmouth. The hospital is used as a teaching center. It is one of cooperating hospitals in the experiment in integration of hospitals in a rural area sponsored by the Bingham Associates.²

Mary Imogene Bassett Hospital, Cooperstown, New York. The staff of the Mary Imogene Bassett Hospital use a group medicine plan. There are various specialties represented on the hospital staff. All physicians

¹ Robinson, R.W. Laconia, New Hampshire. Information on the Laconia clinic. Private communication. 1945.

² Bowler, John P. and Sycamore, Leslie K. The responsibility of the voluntary hospital and its medical staff in the distribution of medical services. In United Hospital Fund. The voluntary hospital today and tomorrow. New York, The Fund, 1944. p. 35-42.

receive salaries rather than fees-for-service. The hospital has an endowment which aids in its upkeep. As described below, the staff of the hospital favors a prepayment plan, although such a plan is not at present used.¹

Producer-sponsored clinics with prepayment plans

The clinic offers a possibility for experimenting with changes within the fee-for-service system. It has been suggested, for example, that within a clinic an over-all charge for diagnostic service may be made in place of a schedule of separate fees for the different diagnostic services. Here the personnel and equipment are centered so that there may be better coordination among them.

Producer-sponsored prepayment plans in urban areas. Two examples are cited of producers' cooperative associations offering medical services on a prepayment plan to subscribers and their families.

One is the Chicago Civic Medical Center. It was organized in 1935 by a group of 12 physicians.

Benefits include general medical care at the clinic or in a hospital. Medical services include complete care in surgery, obstetrics, proctology, gynecology, pediatrics, urology, ear, eye, nose and throat treatment, dermatology, physiotherapy, and roentgenology. Laboratory work, X-ray and electrocardiography are included. Dental services are not included

¹Statement of G.M. Mackenzie in Farm Foundation, Rural medicine and health services. Chicago, The Foundation. 1944. p. 116.

but are scheduled at moderate rates.

Physicians are paid salaries from the income of the clinic, rather than paid on a fee-for-service or per-capita-served basis.

The cost for a family, including husband, wife, and dependent children under 18 is \$48 per year.

The Ross-Loos Medical Group of Los Angeles, organized in 1929, is a co-partnership of 18 physicians who own and operate the medical plan. All 18 partners are active and take part in both rendering medical service and in administering the plan. There are altogether 98 full-time physicians and surgeons in the main clinic and in the 12 other clinics in the county.

Subscribers include approximately 5,000 individual subscribers plus about 23,000 members of groups which have subscribed.

The Ross-Loos Medical Group offers both medical and surgical benefits. It includes benefits to dependents, defined as who are dependent upon the subscriber for support, who live in the same residence, and who are related to him by kin or marriage.¹

Producer-sponsored prepayment plans in rural areas. Apparently there are at present no similar plans in rural areas, although at least two such plans have existed in the past.

One of the early prepayment plans was started in Iowa in 1918.² The Community Hospital at Grinnell, which is a non-profit association, offered a prepayment plan at \$8 per year per person. Board, room, and

¹Shearer, M.W., Business manager, Ross-Loos Medical Group. Los Angeles, Calif. Information on Ross-Loos medical groups. Private communication. 1945.

²Goldmann, Public medical care, p. 62.

general nursing for a two weeks period were allowed but the subscriber paid for medicines, operating room fees, x-ray, laboratory, dressings, or special nursing care. The plan was discontinued when Blue Cross came in.¹

There was such a plan at the Mary Imogene Bassett Hospital in Cooperstown, New York, from 1931 to 1939. Benefits included (1) three weeks of hospital service, and (2) medical service including office calls, all laboratory examinations, and X-rays. The annual cost was \$25 per person or \$100 per family.

After nine years of operation the group was asked by the New York State Department of Social Welfare and State Insurance Department to terminate the prepayment plan on the grounds that they were operating an insurance business. No court decision was made. The group dropped its plan rather than make an issue of it. The plan was opposed by the local and state medical societies.

According to Mackenzie the plan was successful from the standpoint of both members and hospital. Over 80 per cent of the members re-applied for admission each year. The hospital received more money than it would have on the fee-for-service basis.²

Appraisal of producer-sponsored clinics

The type of group action described above offers opportunity for better coordination of personnel and equipment than is possible among

¹Haag, Redel. Grinnell, Iowa. Information on prepayment plan of Community Hospital. Private information. 1945.

²Statement by Mackenzie, In Farm Foundation, op. cit., p. 115, 116.

scattered individual practices. It provides opportunity for increased efficiency, resulting both in better services and lowered costs of services.

Savings in cost of providing services through such organization may or may not be reflected in charges to consumers. The Committee on the Costs of Medical Care reported that the fees charged in clinics in 1928-1931 were about the same as those charged in individual private practice. The savings which were made went to the members of the staff.

The charge is sometimes made that there is loss of the personal patient-doctor relationship in the clinic practice but this need not be true and probably is not true of the small clinic.

The producer-sponsored clinic does not offer participation by the consumer in planning the organization of services and methods of payment. This, however, is not important if the need or preferences of the consumers are met otherwise.

It appears to some people that this type of clinic as usually practiced is not feasible for all rural areas. In the first place, it is likely that not all communities can support such a clinic. The number of people in the area or their income might be inadequate. Again, not all the physicians in the community might have access to facilities.

The President's Research Committee on Social Trends stated in 1933:

The private clinic represents an effort at cooperation in the interest not only of efficiency, but also of economy and protection against the evils of unrestricted competition.

Such an effort does not, however, strike at the deeper problems of present-day medical practice, namely the uneven distribution of its costs.¹

It is possible that this type of clinic might be valuable in some parts of Iowa. Even though the private clinic does not offer the complete solution to the problem of adequate health facilities for all Iowa communities it may have a contribution for some areas in the state, particularly if it can be developed with prepayment and if some of the savings could result in decreased charges. It is likely that such a group might be hospital-centered in some communities. It may be, too, that such a clinic coordinated with the radial hospital system described later in the chapter would be valuable.

Consumer Cooperatives for Health Services

In a few places in the United States consumer cooperatives have been established to provide medical and allied services. Such organizations are non-profit institutions. Each member owns a share in the organization; each member has one vote. The group in most cases sets up its own service organizations. In some cases both the producers and consumers contracting for services on a prepayment plan have been organized groups.

Urban consumers' health cooperatives

Doubtless the best known of consumers' cooperatives for health

¹President's Research Committee on Social Trends. Recent social trends in the United States. New York, McGraw-Hill Book Co. 1933. Vol. 1. p. 101.

services is the Group Health Association, Inc. This cooperative was organized in 1937 by federal employees and is open to federal employees in the Washington area. In 1944 the membership was over 3,500. Individuals covered, including dependents, numbered over 9,000.

Services of general physicians are available and also services of specialists in pediatrics, obstetrics, internal medicine, eye, ear, nose and throat, surgery, allergy, dermatology, and roentgenology. Hospitalization for 60 days per year is available to persons covered by the contract. This includes a semi-private room, general nursing, use of operating or delivery room, services of anaesthetist, dressings, ordinary medications, routine laboratory examinations, nursery care, emergency room facilities, and use of ambulance service.

The Ross-Loos clinic of Los Angeles described above, illustrates group contracts between a consumers' organization on the one hand and an independent cooperating group of physicians on the other, for prepayment of sickness bills. The clinic was established for the employees of the Municipal Department of Water and Power but later expanded to take in other employed groups.¹ In its operation, from the standpoint of the subscriber, it is more similar to commercial group insurance than to a cooperative plan.

¹Brown, Martin W. American experimentation in meeting medical needs by voluntary action. Law and Cont. Prob. 6:509. 1939.

Health cooperatives in rural areas

For the most part cooperatives to provide medical services by means of contracting with physicians or groups of physicians have been established in urban areas. Rural health cooperatives are few in number.

None are found in Iowa.

Community Hospital, Elk City, Oklahoma. No doubt the best known rural cooperative health organization is the Community Hospital, formerly called the Farmers' Union Hospital Association, of Elk City, Oklahoma. It was organized in 1929 by a lay group in cooperation with a small group of physicians. The moving power in its establishment was a physician who foresaw the advantages of such an organization. It is planned for low-income but not medically indigent families. As of May 29, 1944, the membership was around 2,500 families. Each member owns one share in the hospital. The members elect a board which manages the hospital, employing a business manager and director of the medical staff. Participation in the benefits of the health services are not limited to members and their families but non-members pay the regular fees charged for similar services in the community.¹

Other health cooperatives are sponsored by the Farmers' Educational and Cooperative Union of America. In 1944, three other Farmers' Union groups were organizing cooperative hospitals. These were located in Oregon,

¹Shadid, Michael A. Medical director, Farmers' Union Hospital. Elk City, Okla. Information on Farmers' Union Hospital Association. Private communication. 1944.

in Glasgow, Montana, and in Ray, North Dakota.¹

Sandhills Region Health Association, Thedford, Nebraska. This is a cooperative organized by the efforts of the people in the area who recognize the need for health services and who saw that by formal group demand they could acquire needed services in the Sandhills Region Health Association with headquarters at Thedford, Nebraska. The credit for arousing interest and getting discussion under way which led to group action goes to the education of the Farm Foundation and the Nebraska Agricultural Extension Service.

This cooperative is located in a sparsely settled area, covering about 50 square miles. Before the group was established there were no physicians in the community and no hospitals within sixty miles. The cooperative employs a physician, public health nurse and secretary. The ten directors are laymen elected by the members, two from each of the five trade territories. The cooperative operates on the prepayment plan. Non-members may use the services but they pay for them on the fee-for-service system. As of April, 1944, there were approximately 200 families including approximately 1,000 persons in the cooperative. They represented approximately half of the population in the area.² They were low income families but not medically indigent.

¹Edwards, Gladys Talbott. Denver, Colo. Information on cooperatives sponsored by Farmers' Union. Private communication. 1944.

²Farm Foundation, op. cit., p. 23, 82-84.

In the Sandhills Health Association, rates are \$30 per year for a man and wife, \$3 each for three children, and \$1.50 each for more than three children. The physician's salary includes \$350 per month plus \$100 travel expenses and 60 per cent of surgical fees. There are charges for some services, but members receive a 30 per cent reduction for surgery and a 15 per cent reduction for X-ray. All services are available to non-members at regular office fees of \$2 which goes to the association.

South Plains Cooperative Hospital Association. Another cooperative hospital association is the South Plains Cooperative Hospital Association of Amherst, Texas, which has been in operation since 1941. Members are farm and small town residents in four counties. In 1945, 1,700 families were enrolled.¹

Benefits include both hospital and medical services to members. Services are available to non-members on a fee-for-service basis. Costs are about the same as for the Elk City Cooperative plan: \$12 a year for one person, \$16 for two, \$22 for three, \$25 for four and \$2 more for each additional person. These fees cover all services of physicians for examinations, treatments, metabolism tests, laboratory tests, and immunizations. There is an additional charge for materials and medicines. There is a charge of \$1.50 plus 25 cents per mile, one way, for home calls. For hospital services, members pay \$2.50 for semi-private room, board, and general nursing care, or \$3 for private room; \$20 for major oper-

¹McDaniel, E.C., Business Manager. South Plains Cooperative Association, Inc. Amherst, Texas. Information on South Plains Cooperative Association. Private communication. 1945.

ations; e.g., appendectomy; \$10 for minor operations, e.g., tonsilectomy; and \$10 for obstetrical cases. Physicians are paid on a salary basis.

Preventive care is emphasized. One of the folders of the association states, for example:

A regular checkup saves lives, saves time and saves money. Members are urged to come in often for regular checkups. By doing so, you may save your life or prevent serious illness. Come in at least twice a year for examinations.

Confinement cases are urged to come in at least once a month for a checkup of blood pressure, heart, kidney, etc.¹

Attitude of medical profession concerning cooperatives

Cooperatives and the medical profession. During the thirties when cooperatives of this type were being established there was much opposition from the American Medical Association. Physicians who cooperated with such plans sometimes were expelled from local medical societies and not permitted to use hospital facilities. In some cases doubtless the opposition was due to sincere fear of unethical practice; in others it appeared to be evidence of monopoly control. A test case was the successful prosecution of the American Medical Association and one of its affiliates by the government. The action was based on the tactics of the Association with regard to the Group Health Association of

¹South Plains cooperative Hospital Association, Inc. Information about services. Amherst, Texas, The Association. 1945. p. 3.

Washington, D.C.¹ Since that time the Association has changed its attitude somewhat.

In 1936 the United States Department of Justice obtained an indictment of the American Medical Association in this case on the grounds of restraint of lawful practice of medicine by restriction of activities of the Group Health Association. In 1943 the Supreme Court unanimously upheld this conviction. The decision stated in part:

The medical societies combined and conspired to prevent the successful operation of Group Health's plan, and the steps by which this was to be effectuated were as follows: (1) to impose restraints on physicians affiliated with Group Health by threat of expulsion or actual expulsion from the societies; (2) to deny them the essential professional contacts with other physicians, and (3) to use the coercive power of the societies to deprive them of hospital facilities for their patients.²

It is to be noted that much of the opposition to such plans by the medical profession has been in urban areas. It is possible that the reason for this is fear of competition. There has been no apparent opposition to the rural cooperatives organized in Nebraska. The Elk City, Oklahoma, cooperative met with opposition but nevertheless survived.

Appraisal of consumer health cooperatives

The health cooperative has advantages to offer over other methods of providing services in some areas. For one thing, it is likely to make

¹Discussed in the following:

- a. Raub, Benjamin D. The anti-trust prosecution against the American Medical Association. Law and Cont. Prob. 6:595-605. 1939.
- b. Hard, William. Medicine and monopoly. Survey Graphic 27:606-609, 631-635. 1938.

²U.S. Supreme Court. American Medical Association vs. U.S. 317 U.S. Reports. 532. 1943.

people more conscious of their needs and to arouse their interest and support. The element of having to exert effort to establish the cooperative, in itself, makes for a feeling of pride, ownership, and belonging. For a second advantage, cooperative action of this nature makes possible in some areas services which might not otherwise be obtained. It is possible that in small communities, which could not support a producer-clinic of the type described above and which are not likely to attract a physician looking for a place in which to locate, might, by means of a cooperative, be able to obtain a physician more easily. In some rural areas of Iowa the possibilities offered by a health cooperative might well be considered.

It is likely that such a cooperative would need to work with a county health unit, district health unit, or state health department for some services. It would need also to be integrated with nearby hospital services. In some cases it might even provide the hospital services.

It is probable that the consumer cooperative has less to offer in rural areas of Iowa than in more sparsely populated areas outside of Iowa. It is, however, a possibility to be explored by communities which lack medical services. There would need to be coordination of the services of such an organization with public health services in the community.

Community Health Center

The term community health center as used in this thesis refers to a publicly owned and controlled unit. The term might include any of the groupings of medical and allied health centers described above. It is

likely that the private clinic in a rural area would serve the whole community and possibly be the only source of health service for the community. The cooperative plan such as the Sandhills Region Health Association also does this.

Rural hospital as health center

Among recent proposals for reorganization of medical and allied services in rural areas are suggestions for a community health center with hospital services, possibly offices for physicians in the locality and equipment for special diagnostic and curative treatment. It is important that diagnostic facilities be available and good medical staff conferences be held. A major function of the rural hospital might be to provide this service for all physicians in the community. The general hospital needs to be more than a haven for bed patients. It needs to provide clinical service. A large proportion of illness does not need hospital care. It has been suggested that the specialists working with the smaller health centers might be provided by a public health unit or by a central hospital. Each center would be related to a larger hospital center for consultation and for special services. Routine matters, such as office work, would be taken care of by clerical and technical staff available to all the physicians.

Proposals have been made for a radial system of hospitals, with a larger hospital in an urban center providing a staff of specialists

who would work not only in this hospital but also go out to small hospitals in the area for consultation work and for clinics. This plan is discussed below.

In either case the public health unit and the community hospital would need to work together closely. It has been suggested that the local public health unit, and hospital facilities and doctor's offices might well be housed under one roof.

Many people will agree with the following point of view expressed by Dr. Parran of the United States Public Health Service concerning the changed concept of hospitals. It is a view which fits into the idea of a community health center.

It wasn't many years ago that the hospital was considered merely a place for the poor sick to go, and usually to go to die. That concept has changed; now we look upon the hospital as a place to which a sick person goes in order to get modern treatment, and where he expects to get well. I think it is not a very great jump in our concept to visualize the hospital of the future in terms of an instrument for total community health -- an institution with facilities and with the complicated and varied skill necessary to promote health and prevent disease, as well as to treat the sick. Because of that concept, then, one must visualize closer relationship between the public health authorities of the country, both in the states and localities, and the hospitals which serve these areas.¹

Hillsdale Community Health Center

An example of a community health center which may be indicative of

¹U.S. Congress. Senate Committee on Education and Labor. Wartime health and education. Hearing ... Seventy-eighth Congress, first session, on S. 74. Washington, U.S. Govt. Print. Off. 1944. p. 1799.

the trend is the type sponsored by the W.K. Kellogg Foundation such as the Hillsdale Community Health Center described below. Somewhat similar are the rural hospitals sponsored by the Bingham Associates and described in the section on an integrated hospital system which follows.

The Hillsdale Community Health Center is a corporation controlled by the city of Hillsdale, Michigan, with a population of 7,000. Its 65-bed hospital built in 1939 serves a county of 28,000 persons. It was made possible by assistance from the W.K. Kellogg Foundation and the Public Works Administration.

The objectives of the Hillsdale Community Health Center for post-war days are best expressed in the words of the president of its Board of Trustees, Harold F. Stock:

1. Place our facilities wholeheartedly at the disposal of the Hillsdale County Health Department. This department should, in fact, live with us.
2. Make visiting nurse service available to every home in the county (Small fee if possible--otherwise gratis).
3. Cooperate with home maternity instruction and nursing.....
4. Extend diagnostic services at very low rates, and make an X-ray or laboratory report available to all comers. Subsidized by the foundation for the last few years, we offered lab and X-ray work at extremely low rates. It is of interest to know that such work has recently trebled and not since our new hospital opened have we had to call on our sponsors for the financial subsidy offered.
5. Our future should contemplate low patient rates and high wages for our staff--and it can be done, at least in our community. A fairly run hospital must pay its own way, wages and all.
6. A women's auxiliary is an easy and valuable organization to set up, and, given good leadership, will contribute substantially to the hospital in various interesting ways.

7. We have no provision for accepting charity patients-- indigent cases are usually cared for by the county, the state, or, shall we admit, left to liquidate themselves. But is it not the responsibility of a going hospital to accept some part, at least, of the charity case load? I feel it is.
I would raise a fund from people willing to contribute to hospitals and I would place it at the disposal of a secret committee that would study carefully all cases where charity was indicated. With the committee's approval let's accept these cases to the extent consistent with our special fund-- and say nothing about this service, just give it! I have no doubt that in our community we could readily care for all the real charity cases that ordinarily would exist. In recent years our books show practically no "lost accounts" well, let's have a few to be cared for as suggested.
8. Doctors' clinics to house all the town's medical men should be constructed on our ample grounds. Similar quarters for the County Health Department should be right alongside.
9. Our laboratory facilities should be enlarged to care for food analysis requirements of city and county officials-- including the regular milk and water determinations. Venereal disease cure should have complete attention here also.
10. A suitable portion of our hospital should be made available for the patients of osteopaths. A separate unit if you must.
11. A dental clinic at the health center would come into general public use, possibly with free service for school children-- preventive dentistry, and, of course, painless.
12. Hospital and medical service plans, to be promoted as the logical answer to the anarchistic¹ cry for socialized medicine. Let's socialize our own medicine!¹

Community health centers sponsored by philanthropic groups

The Commonwealth Fund through its Division of Rural Hospitals has been sponsoring for the past twenty years the building of demonstration community

¹Stook, Harold F. In post-war days rural health will pose challenge. Hospitals 12:13, 14. 1944.

hospitals on a trade area basis. Thirteen hospitals have been built and another remodeled in 14 states with the aid of the Fund, which also has provided advisory and consultant service. All of the hospitals are local non-profit corporations. They are open to patients without restriction as to race, creed, or economic status and to all physicians in good standing. The purpose has been to demonstrate the value to the community of an institution in which all physicians would have an opportunity to practice, to pool their skills and experience, and to grow professionally.¹

Southmayd and Smith state that:

The Fund was seeking to provide service measuring up to accepted standards of cost that could be met by ordinarily prosperous rural communities. The best way to bring this about seemed to be to pool the hospital needs of a number of villages and towns and the intervening country side so that the resulting total demand would support a relatively strong and stable hospital at their common trading center. It seemed reasonable to suppose that all the people who during most of the year could reach the center in an hour's travel on the road might be counted in as potential clients of such a hospital.²

An example of the type of hospital organization which the Commonwealth Fund sponsors is the institution at Tupelo, Mississippi, a town of 3,000 population. Hospitalization prepayment plan is available to people applying in groups of five or more, at a rate of \$20 per year for the entire family, including all dependents. Benefits include 21 days of hospitalization per year for any member or a dependent. There is one-third discount on rates for a greater number of days of hospitalization.³

¹Southmayd and Smith, op. cit., p. v, vi, 5.

²Ibid., p. 6.

³Larson, Gus. Farmers can have better health services. Country Gentleman. 116, no. 10:72. 1945.

These hospital centers do not provide the more rounded health services suggested by Stock of the Hillsdale Community Hospital.

Integrated Hospital System

Among suggestions for the development of a better utilization of available resources for medical care and allied services in rural communities is one for the organization of an integrated, radial system of hospitals and clinics reaching out from a base hospital in a large town or city into small towns and farm areas. It will be of interest to examine briefly this plan and some experiments in this direction, together with an appraisal of such a plan with reference to Iowa.

The plan itself

An integrated system as proposed by various individuals would¹ consist of a base or primary hospital, several district or secondary hospitals, and many tertiary or small local hospitals, together with still smaller health centers and clinics.

¹As described in the following:

- a. Davis, Graham L. Content and administration of medical care program hospitals and their construction. Amer. J. Public Health 34:1239-1243. 1944.
- b. Testimony of Dr. Parran, U.S. Congress, Hearings ... S. 74, op. cit., p. 1788-1794.
- c. Sarvis and Davis, op. cit.

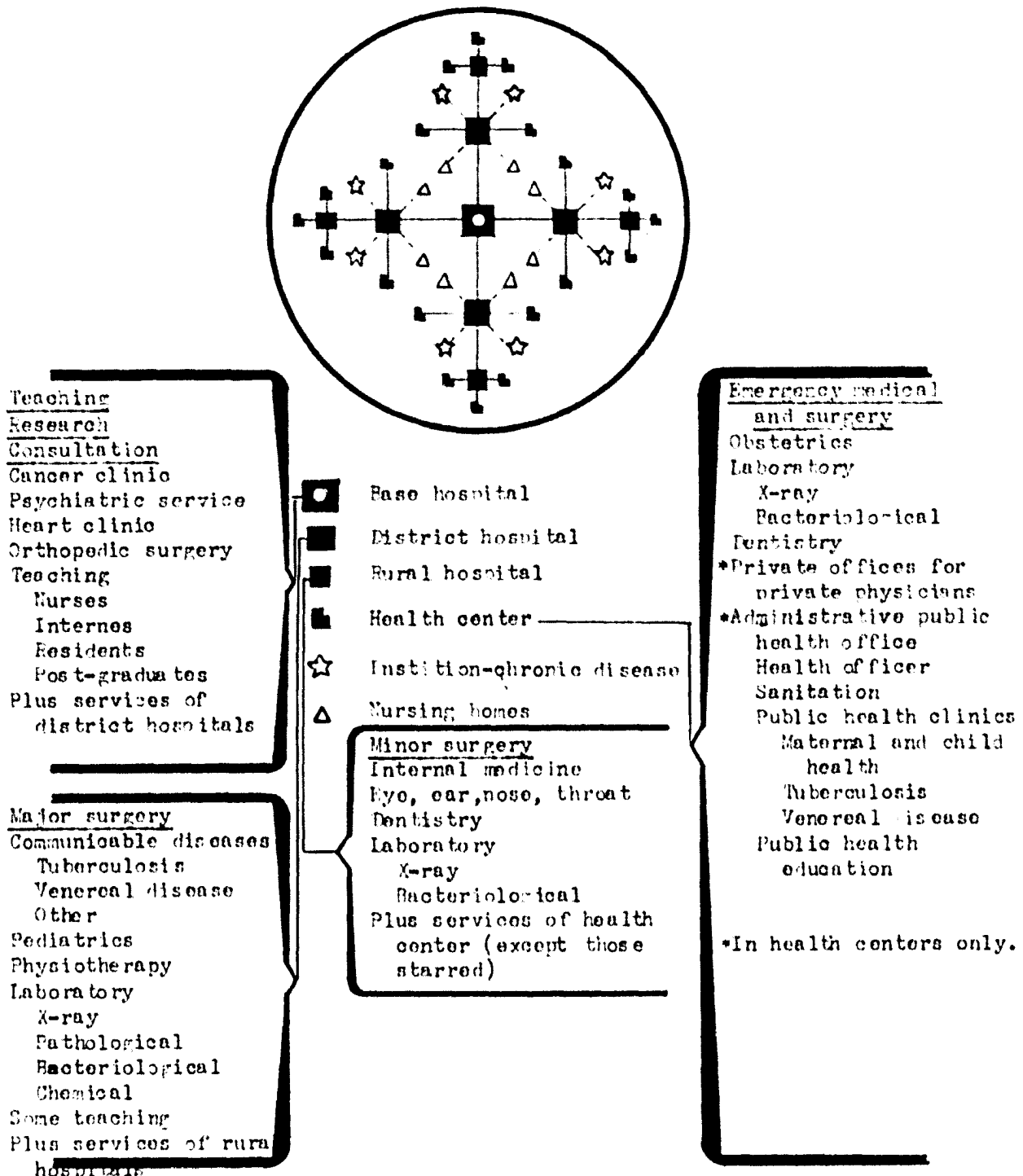
Base hospital

The base or primary hospital would be a teaching, research, and service institution. It would be found, as a rule, in large centers of population, its service district in general being the trade area of the city. It would be connected with a medical school in which all types of medical service, medical research and teaching would be carried out. There would be complete hospital service, with various clinics, i.e., cancer, heart, psychiatric, and eye, ear, nose and throat clinics; major surgery; internal medicine; obstetrics; pediatrics; orthopedic surgery; communicable disease treatment; physiotherapy; dentistry; dietetics. There would be various laboratories: X-ray, pathological, bacteriological, chemical. There would be provisions for teaching not only undergraduate medical students but also nurses, internes, and resident post-graduate students.

District hospitals

The base hospital would serve district hospitals. These district or secondary hospitals also would be complete hospitals but less comprehensive with respect to staff, specialists, and physical facilities. They would serve the fairly large communities in which they were located and smaller nearby communities with respect to major surgery, physiotherapy, pathological, bacteriological and chemical laboratories in addition to the services provided by smaller hospitals. They would provide some teaching especially

Figure 31. Integrated hospital system.



¹Source: U.S. Congress. Committee on Education and Labor. Subcommittee on health and education. Wartime health and education. Interim reportS Res. 74 ... Seventy-eighth congress, second session, 1945. p. 10-11. Subcommittee report no. 6.

the training of nurses and internes. Connected with them would be institutions such as tuberculosis hospitals and convalescent or nursing homes.

Small local hospitals

Linked with the district or secondary hospitals for consultative and specialist service would be a series of smaller tertiary hospitals or rural hospitals and health centers. They would provide emergency and minor surgery, internal medicine, obstetrics, pediatrics, eye, ear, nose and throat work, dentistry, and some laboratory service.

Rural health center

A fourth group, still nearer the periphery, in rural areas, would include a series of health centers providing emergency medical care and surgery, dentistry, and some laboratory service. Laboratory and other diagnostic facilities would be available to private physicians. It has been suggested that here might be housed offices of physicians in private practice, dentists, clinics, and health departments.

Among all of these hospitals and health centers would be constant exchange of information, training, and consultation service. Training of internes would be a part of the service of rural hospitals and health centers as well as district and base hospitals.

Example of integrated hospital system

An example of such an integrated hospital plan is one in New England

sponsored by the Bingham Associates. A diagnostic base hospital of 100 beds, Pratt Diagnostic Hospital, is located in Boston. It is connected with the Tufts Medical College. There are two district hospitals of 200 beds each, one located at Lewiston and the other at Bangor. The Central Maine General Hospital at Lewiston is the consultation and specialist center for fourteen rural hospitals of from 15 to 20 beds. The Maine General Hospital at Bangor serves 12 satellite rural hospitals. In each of the groups, the smaller hospitals cooperate in the use of such services as X-ray, pathology, electro-cardiography, and the preparation of blood plasma. They cooperate in conducting clinical, pathological, radiological, and consultation conferences.

They are linked to the respective district hospitals which in turn are linked to the regional hospital in Boston. Difficult cases are sent to the latter for diagnostic study at a fixed minimum fee. No patients are accepted for study and diagnosis unless referred by local hospitals. As soon as possible they are sent back to their source with complete report and instruction for treatment.

The two district hospitals are well equipped and well staffed but on a smaller scale than the base hospital. The rural hospitals have well-equipped laboratories but do not retain a pathologist or roentgenologist. Instead they are visited regularly by well trained technicians from the district or regional center, who read X-ray films, diagnose slides and supervise the general laboratory services, and offer consultation.

The district hospitals do some teaching. There are refresher courses

for physicians in all 28 of the hospitals from the largest to the smallest. Further, post-graduate courses at the New England Medical Center are subsidized by the Bingham Associates Fund for practicing physicians and technicians, whose practices are taken over by resident staff members while they are away.¹

Appraisal of integrated hospital plan with respect to Iowa

There are many advantages in an integration of hospital services and facilities, chiefly the following:

1. Better provision of consultation service and integration of the services of various specialists;
2. Lowered cost and wider distribution of services through less duplication of equipment and more efficient use of the services of specialists;
3. Greater opportunity on the part of the rural physician for professional contacts among his fellows and for further training.

An integrated hospital plan would necessitate knowledge of (1) health needs of the population and (2) availability of health services. To be effective it would need to be based upon factual data obtained by a survey of the state. Graham Davis has suggested that such a survey is preferably a function of the state and that it might be sponsored by the state planning

-
- ¹
- a. Curran, Jean Alonso. Provision for better medical care. Milbank Memorial Fund Quar. 23:16, 1945.
 - b. Testimony of Farran, U.S. Congress ... Hearing on S. Res. 74, op. cit., p. 1790.
 - c. Proger, Samuel. The Joseph H. Pratt diagnostic hospital. The New England Jour. of Medicine. 220:771-779. 1939.
 - d. Southmayd and Smith, op. cit., p. 129.

commission or the state department of health or that an independent commission might be appointed by the governor. As mentioned earlier, such a survey is under way in Iowa, conducted by the State Hospital Survey Committee appointed by the governor in 1945.

Dr. Parran of the United States Public Health Service has stated that "effective distribution of general hospital and health facilities in a state can be accomplished only through planning and control by some official state agency".¹

It is likely that some opposition may arise against an integrated plan such as this. It is possible that some physicians and laymen will fear centralized control from base or district hospitals or from a government agency controlling these base hospitals. Some way would need to be devised to keep each small hospital an entity in itself with respect to policy, although doubtless many people would agree that minimum standards to be maintained in hospitals might well be mandatory. It may be that some type of central organization other than government would be effective.

It is likely that some development in the direction of greater integration of hospital facilities is possible within the framework of private and local community action. Experiments such as the Bingham Associates project in New England point in this direction. Very likely it is well to have experimental systems such as this before any large scale organization is inaugurated. Iowa already has the framework for an integrated hospital. There is the State University Hospital at Iowa City, in conjunction

¹Testimony of Dr. Parran. U.S. Congress ... Hearing on S. Res. 74, op. cit., p. 1790.

with the Medical School of the University of Iowa. Diagnostic and therapeutic services are available at the present time. If some of the latter could be cared for within the local community and the facilities of the University Hospital reserved for difficult cases, there might be a possibility for closer integration between this hospital and others for consultation service.

Hospitals in the larger cities of the state, such as Des Moines, Sioux City, Dubuque, Davenport, and Cedar Rapids might well serve as district hospitals. Possibly they are serving at present as consulting centers for smaller hospitals and physicians from rural areas to a greater extent than is now apparent. There has been apparently no research on this question.

It is possible that an integrated hospital service such as that advocated by some leaders is far distant and that it may not soon develop in Iowa. Other developments for services of rural hospitals may at present be more timely. One of these is the pooling of hospital needs and possibilities for meeting them among several rural communities.

It is likely that if such a bill as the Hill-Burton Hospital Construction Act is passed by Congress some state-wide plan will be necessary in order for localities to obtain funds provided by the act for building or expanding local hospital facilities.

Canadian Municipal Doctor Plan

The plan and its extent in Canada

A plan for providing a physician in sparsely populated communities has been in operation in parts of Canada since 1916. It is a municipal doctor plan, sometimes called the "Saskatchewan Plan" since it first developed there. Permissive legislation for the plan was passed in Saskatchewan in 1921, in Manitoba in 1923, Alberta in 1925 and in Ontario in 1944. The municipality, which in Canada is similar to the county in the United States, employs the physician. Costs are met from general taxation, either on a property basis or on a per capita basis. The physician's duties are those of a general physician, including minor surgery.

In 1941, 91 rural municipalities in Saskatchewan had municipal physicians. Altogether, 19 per cent of the total population of the province and 22 per cent of the rural population were living in areas in which medical services were paid for by the municipality.¹ In 1944, 102 municipalities had by-laws for the service but due to the shortage of physicians as a result of the war only 82 actually had municipal physicians. In Manitoba in 1944 there were 12 municipalities with municipal doctor plans but only 15 in operation due to shortage of physicians.²

¹Bureau of Cooperative Medicine, New plans of medical service. New York, The Bureau. 1940. p. 66.

²Farm Foundation, op. cit., p. 66.

The Canadian plan is under the general jurisdiction of the Health Department of the provinces. Each municipality, however, employs its own physician. The physician receives guaranteed salary, holidays, freedom to attend district and medical society meetings, and leave for graduate work in alternate years. In return, all members of the community are entitled to certain basic health services which are most needed and which are provided at minimum cost to the community.

In general, the physician provides general medical services, obstetrical care, and surgery of a minor nature; activities as medical health officer, organizing and conducting immunisation clinics for the more common communicable diseases, examination of school children, giving corrective treatment when it is necessary, and inspecting school premises. Often ordinary drugs and dressings are included also in what the physician provides.

Hospital services are provided by some communities. In 1940, 12.5 per cent of the total provincial population was served by 59 municipalities having such plans. In 1940, 5.9 per cent of the provincial population received both medical and hospital care. They were served by 24 rural municipalities and four towns and villages. A few municipalities have nursing and dental services.¹

¹Data in above section from:

- a. Jackson, F.W. Canadian planning for an integrated program of preventive and curative medicine: address delivered at conference at Chicago, 1944, sponsored by Farm Foundation. In Farm Foundation, op. cit., p. 154-158.
- b. Jackson, Farm Foundation, op. cit., p. 85.
- c. Jackson, F.W., Deputy Minister, Department of Health and Public Welfare, Winnipeg, Manitoba. Information on Canadian municipal doctor plan. Private communication. 1944.
- d. Davis, Michael M. America organizes medicine. New York, Harper and Bros. 1941. p. 216.
- e. Bureau of Cooperative Medicine, op. cit., p. 66-68.

Appraisal of municipal doctor plan

There are certain advantages in the employment of a physician by the community. In some cases a physician might not be otherwise available. The contract basis, giving the physician a guaranteed salary, together with specified duties and privileges, may attract physicians who would hesitate to locate in a sparsely settled area in which the possibility of making a living might otherwise be doubtful.

It may be argued, too, that such a plan equalizes basic health services on a basis of need. All members of the community are entitled to certain basic health services which are most needed. The services are provided at minimum cost to the community.

It is likely that such a plan of employment of physicians by a small governmental unit such as a town or county is more applicable to a scattered rural area than to Iowa communities. It is likely that Iowa communities can attract physicians in other ways. The suggestion sometimes made, however, of having community-owned clinic or laboratory facilities and other equipment, or having such facilities owned by the county and available to all physicians, is on the borderline of this plan. In the latter case, however, each physician has a private practice and receives his income on a fee-for-service basis.

There is not a great gap between the municipal doctor plan and the employment of other personnel by the local government. For example, in Iowa some local governments employ public health nurses, county sanitation engineers, and laboratory technicians. It may be argued, however, that for the most part the public health staff performs services

less personally related to the members of the community than in the case of the physician. At any rate, it is not likely that the municipal doctor plan will find much favor in Iowa.

Some Attitudes Toward Grouping of Health Services

The grouping of medical and health facilities as described above has met with diverse reactions upon the part of both professional and lay groups. In general, the producer-sponsored private clinic, using the fee-for-service form of paying for services, has met with the least resistance. It is, of course, the most similar to the traditional pattern. Contract practice, under which the other forms fall, has met with much opposition.

Committee on Costs of Medical Care

The Committee on the Costs of Medical Care recommended in 1932:

... medical service, both preventive and therapeutic, should be furnished largely by organized groups of physicians, dentists, nurses, pharmacists, and other associated personnel. Such groups should be organized, preferably around a hospital, for rendering complete home, office, and hospital care. The form of organization should encourage the maintenance of high standards and the development or preservation of a personal relation between patient and physician.¹

A minority group in the committee opposed the recommendation.

Their stand was:

(1) It [the medical center plan] would establish a medical hierarchy in every community to dictate who might practice

¹Committee on Cost of Medical Care. Medical care for the American people. Publication of committee, no. 28. Chicago, The Univ. of Chicago Press, 1932. p. 109.

medicine there. This is inherent in the plan since any new member of the center must be chosen either by the chief or by a small staff. (2) It would be impossible to prevent competition among the many such centers necessary for large cities; cost would inevitably be increased by the organization necessary to assign patients to the various centers. This would add to the evils of medical dictatorship those of a new bureau in the local government with its attendant cost. (3) Continuous personal relationship of physician and patient would be difficult if not impossible under such conditions.¹

American Medical Association

The medical profession has viewed the grouping of health services with mixed feelings. In general, the American Medical Association has opposed such plans unless controlled by physicians. In 1932, this statement appeared in the Journal of the American Medical Association:

The alignment is clear--on the one side the forces representing the great foundations, public health officialdom, social theory--even socialism and communism inciting to revolution; on the other side the organized medical profession of the country urging an orderly evolution.²

A change in attitude by the profession may be indicated in a statement which appeared in the Journal in 1941:

Although the American Medical Association and its constituent societies have been charged with opposition to group practice, a search of the Proceedings of the House of Delegates of the American Medical Association for thirty-two years failed to show any action that indicated the slightest hostility to the formation of ethical and capable medical groups. The extent of the participation of group members as officials of the national and state organizations would indicate a complete absence of any such hostility.³

¹ibid., p. 155.

²Journal of the American Medical Association. The private physician and preventive medicine. [Editorial.] J. Amer. Med'l Assoc. 99:150-152. 1932.

³American Medical Association, Bureau of Medical Economics. Report. J. Amer. Med'l Assoc. 116:1803. 1941.

The Chicago Civic Medical Center is opposed by the Chicago Medical Society. Its members are not accepted by the Society. The Elk City, Oklahoma, cooperative, in its early days, met with the same type of resistance from the local medical society. Apparently it has met with less resistance the past few years. The Mary Bassett Hospital plan also was opposed by the local and state medical society.

It must be remembered that the medical profession sincerely wants to protect the public from unprofessional practices. There must, however, be careful analysis as to when opposition to unprofessional action stops and opposition to anything changing the status quo begins. In some cases the onlooker may receive the impression that the opposition is merely for the purpose of protecting the practice of individual physicians.

Farm groups

Farm groups are in general conservative in their acceptance or rejection of plans affecting their members. It is evident, however, that farm groups are exploring the possible methods of obtaining good health services in rural areas. A certain change is noted in the following statements.

Farm Bureau Federation. The American Farm Bureau Federation in a resolution for 1945 stated:

We recommend full cooperation with established units, with emphasis on clinics, dental, hospital, surgical

and medical care, immunization and other preventive measures.¹

The Iowa Farm Bureau Federation resolution for 1945 included the following statement:

There are many communities in this state that have had very poor medical facilities even in normal times. We therefore urge that every effort be made to establish health centers to the end that every community be afforded proper medical care.²

The type of ownership and control of these health centers which the Farm Bureau favors is not indicated in these resolutions.

Farmers Union: The Farmers Union has been active in sponsoring consumer cooperatives. For example, the cooperative at Elk City, Oklahoma is a Farmers Union group.

The Union also favors government ownership of community health centers as a future goal.

American Country Life Conference: The Health and Medical Care Committee of the American Country Life Conference, Chicago, 1944, suggested the following goals toward which farm people should be working:

1. Every county served by a complete public health unit.
2. An organized prepayment plan for medical services available to all people.
3. Health centers equipped with clinical facilities and adequately staffed by one or more competent doctors and nurses.

¹ American Farm Bureau Federation. Convention resolutions. The Nation's Agriculture 20, no. 1:32. 1945.

² Sayre, Mrs. Raymond. Information on stand of Farm Bureau Federation with respect to grouping of health services. Private communication. Des Moines, 1945.

4. Hospitals in rural areas operated under community rather than private auspices and equipped to take care of emergencies and every day needs of families for hospital care.

If the rural families of the United States are to have the level of health service of which modern science and technology are capable, integrated planning will be necessary and some kind of county, state, and federal organization will be needed. Our committee recommends that insofar as it is possible, the control and administration of these services be kept in the hands of the people served.¹

General Appraisal of Grouping of Medical and Allied Health Services

Groupings of medical and allied service offer advantages both to physicians and patients, to producers and consumers.

Advantages to physicians

Among benefits to physicians through the grouping of their services are the following: (1) saving time and effort through specialization of professional work and through employment of well trained administrative, secretarial, and technical assistants; (2) availability of more diagnostic and therapeutic equipment than an individual physician may be able to acquire, together with economy due to avoiding duplication of equipment and due to more complete use of equipment; (3) specified salary, responsibilities, and privileges such as vacations; (4) professional stimulation in interplay of thought and experience among various members of the group; (5) ready availability of other physicians, including

¹Mies, Elsie, Chairman. Living standards for rural people. American Country Life Association. Farm and rural health after the war: proceedings 24:69-71. 1944.

specialists, for consultation; (6) opportunity for further study, both through the group itself and through having leave granted for study elsewhere.

Advantages to consumers

Benefits which are possible for consumers from the grouping of health services include those which arise largely through lowered cost of services due to more efficient utilization of physical plant and staff. Not only are lower charges for some services possible but also in many cases more adequate services are available through greater specialization and more equipment. The advantages for physicians outlined above result in better trained personnel.

Disadvantages

The fear of regimentation is one of the main arguments presented against grouping of medical and allied health services. Fear of loss of the personal relationship between physician and patient is one aspect of this. As pointed out in Part I, however, there is doubtless a growing tendency on the part of the patient to place faith in a physician because of confidence in his skill and knowledge. There is, however, no reason for loss of the personal relationship between physician and patient in the small rural clinic.

Summary and Conclusions

Some beginnings in the grouping of facilities for medical and allied health services have been made in rural areas, although for the most part such groupings occur in urban areas. Organizations in rural areas are for the purpose of providing services for the bulk of people in the community. They are not charitable institutions offering services only to the needy.

Groups of physicians have pooled their resources in forming clinics offering services on a fee-for-service basis or in some cases on a prepayment basis. Groups of consumers have established cooperatives, contracting with individual physicians or groups of physicians to provide certain services on a prepayment basis. Often services are available to non-members on a fee-for-service basis. In some areas of Canada the community itself may make such a contract with a physician.

Some type of community health center seems a likely solution to the question of efficiently obtaining services of physicians and general hospitals in many areas of Iowa. Such a plan makes possible pooling of community resources to obtain needed equipment and staff without duplication of some facilities and lack of others.

There is no one answer as to how such a health center will be organized and financed. It is likely that producer-sponsored clinics are feasible in localities of 2,500 to 10,000, where several physicians can pool their capital to provide the necessary physical plant. For smaller localities,

with fewer physicians needed, and possibly only one, the consumer cooperative plan or community owned center is feasible. It is not likely that the municipal doctor plan will find favor in Iowa.

As yet no one type of organized group appears to be the answer to obtaining adequate health services. There may be variation among communities as to the types best suited to their needs. In some areas producer-sponsored clinics may be suitable; in others, consumer cooperatives. In a few cases government-sponsored cooperation may be the answer, particularly in areas of low income. In many areas community-owned and operated health centers may be the answer.

Whatever plan is adopted by a locality, there is need for coordination and integration of facilities between localities for some services. Some type of radial organizations of hospitals appear feasible for Iowa.

In any case, rural communities may well take stock of the benefits to be derived from grouping of services. It is likely that more grouping will occur in the future. The advantages to producers and consumers through the more efficient organization thus made possible are numerous.

VOLUNTARY, PRIVATE INSURANCE AS RELATED TO MEDICAL
AND ALLIED HEALTH SERVICES

At the present time the application of the insurance principle to medical and allied services is at the forefront of public discussion. It is closely related also to the issue of who should pay for the services, the individuals who receive or anticipate the need for the services, or the government, local, state, or federal.

This chapter is concerned with (1) the insurance principle, together with its general application to medical and allied health services, (2) commercial health and accident insurance, and (3) non-profit associations using the insurance principle for payment of health services. Workmen's compensation is excluded. Emphasis is placed on new proposals and developments involving the insurance principle.

Some plans using the insurance principle are included in the preceding chapter. These are small clinics and cooperatives using the prepayment plan.

Certain other plans involving the insurance principle are included in the chapter which follows. Of these the voluntary health prepayment plans sponsored by the government are most closely related to the plans discussed in the present chapter. Social insurance, discussed with government action, is somewhat less closely related to voluntary, private insurance.

For the purpose of this thesis, social insurance is defined as pre-

payment plans provided by the government, having wide coverage of all families below a certain income limit, usually compulsory, and paid by the insured and his employer, with some aid from the government.

Insurance Principle Applied in General to Medical and Allied Health Services

As a framework in which to place a consideration of proposals for the use of insurance in the area of medical and allied services, it is well first to look at (1) the principle of insurance, (2) some questions involved in its application to medical and allied services, and (3) ways in which insurance programs related to medical and allied services may be classified. In this section attention will be turned briefly to these three points.

Principle of insurance

Insurance is an instrument for the distribution of the cost of a risk which is measurable, but which is uneven and unpredictable in its incidence, in such a way that the total cost is spread among all members of the group and over a period of time. It provides a method of eliminating risk by the payment of premiums based on the estimated average costs for the group regardless of the individuals who receive the service. Individuals in the aggregate pay the costs for the group, regardless of distribution within the group of services received. Individuals by paying a small sum in advance obtain a certain measure of security against some future risk of

inability to pay for needed services.

People in the United States are best acquainted with insurance for life, death, fire, or accident. Insurance for medical and allied health services is relatively new. It has been introduced with respect to medical care and allied services in the form of workmen's compensation for accident. Some commercial insurance companies provide health and accident policies. There are some cooperative prepayment plans on a small scale which make use of the insurance principle.

Application of insurance to medical and allied health services

There is some question as to the extent to which medical and allied health services are of a type to which the insurance principle can be applied. This has been the basis of some of the opposition to broad insurance programs. The experience of some prepayment plans in which the cost has been greater than anticipated has been cited as proving the inapplicability of the principle. It may be that some services will need to be sifted out before an adequate plan of health insurance is possible. On the other hand, it may well be that, with proper organization and with inclusion of enough people, more services can be included than have been contemplated. There must be a sound actuarial basis for the plan. There must be broad coverage of people among whom to spread the risks of need for service.

The element of the influence of the individual on the risk enters into this question. There is possibility of abuse of insurance benefits. The individual may not cooperate to eliminate needless expense for medical and allied health services. In the case of life insurance the individual

consciously affects the risks very little, except in the case of suicide; in the case of health service insurance, however, there may be more abuse. The argument has been put forth that in many cases in health there is malingering for the purpose of obtaining as much service as possible, particularly if the benefits are in the form of cash indemnities. It is likely, however, that increased use of medical and allied health services under insurance plans represent merely the meeting of needs for services which consumers formerly felt they could not afford.

In examining any experiments of proposed changes which involve the use of the insurance principle it is important to consider their effect on decreased uncertainty on the part of both patient and physician as to payment for services, availability of facilities, use of available facilities, development of preventive medicine, group practice, participation by lay groups, and decreased lag between medical knowledge and its practice for the mass of people.

Classification of insurance programs related to medical and allied health services

There are several ways in which to classify insurance programs related to health services. These apply both to voluntary, private insurance and to social insurance.

Type of risk covered. In general, there are two types of risks relating to health services. Insurance needs (1) to compensate for loss of income during the period of disability and (2) to cover the cost of

providing the medical or allied service. It is necessary, too, that provisions be made to guard against abuse of the system.

Eligibility requirements. Various restrictions may be made as to eligibility to participate in the insurance, including the following:

1. Exclusion of undesirable risks. In commercial policies there may be exclusion of undesirable risks. Such restrictions exclude persons engaged in certain dangerous occupations or, in some cases, accept them only for certain benefits or at higher premiums. Persons suffering from certain diseases or belonging to a family with certain types of health history also may be excluded. Frequently persons over 65 years of age are excluded.

2. Income limitation. Some medical society plans exclude families with more than \$3,000 income per year. Social insurance also, as a rule, is available only to low income families. Indirectly, some commercial policies exclude low income families because of high premiums.

3. Membership in specified groups. Membership in specified groups may be requisite. Certain fraternal groups have health insurance for their members. The Farm Security Administration programs are available only to F.S.A. clients. A few State Farm Bureau Federations offer health insurance to their members.

On the other hand, some proposals, such as the British, include unlimited coverage to all citizens of basic medical and allied health services.

Insurance may be classified, then, as to persons covered, on the following basis: individual, group, or social.

Form in which consumers receive benefits. Traditionally, benefits from health insurance have been in the form of cash payments to the consumers. Commercial policies are of this type. A second type consists of cash payments of bills directly to the agency rendering medical or allied services by the agency which collects the prepaid funds. Most F.S.A. programs use this method. Some hospital service plans also use it.

A third type, just beginning to be used, is provision of health services themselves. Some prepayment plans include provision of certain basic services, together with low additional fees for more unusual services.

Agency providing insurance. Insurance may be classified according to agency in two different ways.

In the first place, the insurance may or may not be provided by the agency rendering the service. For example, in the case of some private clinics using prepayment plans, insurance is provided by the agency rendering the service. More frequently, however, the two are separated. Commercial insurance, for example, thus far is provided by a different agency from that providing medical services.

In the second place, agencies providing insurance may be classified as (1) commercial, (2) non-commercial, lay groups, e.g. fraternal, cooperative, or other non-profit associations, (3) professional, or (4) governmental.

Source of funds. The customary source of funds for insurance programs has been the consumers themselves. Taxation as a source of funds has been a fairly recent development in this country. In reality, funds used thus are a subsidization of insurance by the government. A combination of these

sources may be used. This is the case under Farm Security Administration plans. Endowments may be a third source of funds as in a prepayment clinic and by philanthropy. However, these are of little importance in the present picture. Much more important as sources of funds are the payments by consumers themselves and by the government.

Degree of compulsion. Insurance programs may be voluntary or compulsory. Individual insurance purchased from a commercial insurance company is voluntary. Joining a prepayment plan is also voluntary. On the other hand, social insurance covering the entire population or a specified segment of the population, is compulsory.

Classification used in thesis. All insurance plans can be classified in each of the above ways. In this discussion insurance is classified, in general, according to type of agency providing the insurance and according to degree of compulsion. In a few cases, the classification is according to groups eligible for the insurance. Other classifications are referred to subordinately in the discussion.

Commercial Health and Accident Insurance

Because voluntary, commercial health and accident insurance has been first in the field of helping consumers meet the risk of payment of health services and because it is more widely known than other plans using the insurance principle, it is considered first in this discussion.

Health and accident insurance policies guarantee cash payments under certain conditions of disability. Accident insurance pays indemnities

in case of specified injuries. Health insurance includes payments in case of certain medical or hospital bills necessitated by other causes than physical injury due to accident. Some policies combine the two types.

No examination is made in this thesis of health and accident insurance, as commonly provided by insurance companies to individuals, with the exception of a general appraisal. Some attention is given to group insurance used by farm families.

Group health insurance offered by insurance companies

Group insurance in general. Group insurance, as the term is commonly used, is sold by commercial insurance companies to members of employed groups. Because the group represents similar risks, insofar as occupation and level of income affect need for health service, and because there is a saving in the cost of collecting premiums on a group basis, the insurance company is able to offer certain benefits at lower rates than individuals separately might be able to obtain. Group insurance is available to more or less homogeneous groups, such as employees of a firm or industry, a group of teachers, or municipal employees.

Group insurance for rural people. Commercial group insurance for the most part is available only to urban people. The reason is mainly that urban groups are easier to contact and that collections are simpler.

One example of health insurance available to farm people on a group basis and secured from a commercial insurance company is the plan offered to the 13,000 members of the Pure Milk Association of Chicago and their families. The insurance also is available to employees of members, together

with their families. The plan has been in operation since April, 1945. The geographic area in which members of the Pure Milk Association, a cooperative, live covers 35 counties in Illinois, Indiana, Wisconsin, and Michigan.¹

The policies offer cash indemnity for certain services. Hospital services include 30 days of hospitalization, with room, board, and general nursing, for any one injury or sickness, not to exceed \$4 per day, use of operating room, anaesthetics, X-ray, laboratory, drugs and medicine or surgical dressings, not to exceed in aggregate \$20 for any one accident or sickness. It includes maternity indemnity up to \$40. Surgical expenses are included according to a schedule of operations including most common operations.² Benefits also include life insurance features up to \$1,000. The annual cost for a family consisting of husband, wife and dependent children is \$52.20.³

Farm Bureau insurance companies. The Ohio Farm Bureau Federation offers hospitalization insurance to its members on the group basis. The insurance is issued by the Farm Bureau Mutual Automobile Company, a mutual company organized under the laws of the state of Ohio. The company issues County Farm Bureau Hospitalization contracts. Each county is set up as an individual group. The policy is issued to county Farm Bureau units. Applications of 75 per cent of the members of a unit are necessary for the

¹Winn, W.E., Treasurer of Pure Milk Association. Information on health insurance for members of Pure Milk Association. Private communication. Chicago, 1945.

²Great Northern Life Insurance Company. Specimen copy of family hospital and surgical expense insurance policy. Chicago, Ill. 1945. p. 1, 7.

³Ibid.

issuance of any policies to the group. "Members" include husband, wife, and dependents under 18 years of age. Family policies are issued, the same premium covering husband, wife, and all dependents under 18, regardless of number.

The annual costs for hospital services paid in monthly installments are \$8.40 each for husband and wife or \$21.50 for the family, including all dependents under 18. With certain surgical benefits in addition to hospital benefits the costs per year paid in monthly installments are \$15.20 each for husband and wife, or \$38.40 for the entire family.¹

Since the first Ohio County Farm Bureau put the plan into force in 1942, there have been such programs in 81 additional counties. In September, 1945, only six counties in Ohio did not have the plan. Altogether there were approximately 35,000 certificate holders.²

Farm Bureau insurance in other states. The Farm Bureau Life Insurance Company offers hospitalization insurance to Farm Bureau members in Connecticut, Delaware, Maryland, and Vermont.³

Health insurance provided by farm groups

Farm groups have considered providing health insurance, particularly for hospitalization, for their members. A few state farm organizations have established such plans. As yet, no national group has established

¹Farm Bureau Insurance Companies. Pamphlets. Columbus, Ohio. 1944.

²Jones, Zane L., Special field representative, Farm Bureau Life Insurance Company. Columbus, Ohio. Information on Ohio Farm Bureau Federation plan for group hospitalization and surgical benefits. Private communication. 1945.

³Ibid.

such a plan.

As reported in 1944, several state Granges had been working on some kind of group hospitalization plan and the National Grange had been requested to investigate such possibilities.

Appraisal of commercial insurance.

Commercial insurance has its place in the provision of security against sickness and accident.

Advantages in commercial insurance. As stated by Hohaus,

Private insurance offers protection against a wide variety of risks pertaining to life, health, and property. The individual decides whether he wishes to have any one or a number of the various types of protection offered and, if so, how much of it he wants or is able to purchase. Private insurance is thus as a rule entirely voluntary with each insured setting his own standards of security. The relationship between the insured and the insurance company, therefore, rests in the principle of individual equity aimed at charging the individual just enough to cover the risk and expense he himself represents to the company.¹

Weaknesses. There are, however, certain weaknesses in such insurance which indicate its inability at the present time to give all the protection which families need. These weaknesses are, in general, inadequate coverage, and the high cost of commercial insurance.

1. Inadequacy of benefits. As a rule, commercial health and accident insurance does not cover the most common causes of need for service. It does not cover any preventive services.

¹Hohaus, Reinhard A. The federal old-age and survivors' insurance plan. New York, Metropolitan Life Insurance Co. 1939. p. 3, 4.

Commercial insurance policies guarantee cash indemnities for certain curative services. In many cases, general services are omitted. In some cases the first two weeks of hospitalization are not included.

LaMont states:

Summing it all up, then, under an accident policy there must first be an accident, that accident must cause bodily injury and that injury must result in death, dismemberment, or disability. Under a health policy there must be sickness due to disease or natural causes, and that sickness must cause disability.

And when the fact of liability is thus established, the amount of benefit in each instance is definitely stated in the appropriate benefit provision.¹

There frequently is misunderstanding of what benefits the policy guarantees. Families sometimes think they have more protection than they actually do. There are exclusions which they do not realize.

In some instances, ... policies designed to sell at prices below the cost of complete insurance may carry the exclusions further and thereby eliminate some common accidents or sickness of more or less frequent occurrence.

Again, some policies are designed solely for particular risks and in such instances the insuring clause ... may specify that the insurance covers only certain named accidents ... In some instances health insurance is similarly limited by confining the coverage to a list of named diseases, usually rarely occurring or disabling. The purpose of such policies is, of course, to furnish only a small piece of insurance for a small price, rather than to offer protection against the multitude of everyday accidents or sickness.

In the same category is the form of hospitalization insurance, which lately has gained a measure of popularity and which

¹ LaMont, Stewart M. Theory and practice of accident and health insurance. Philadelphia, The Spectator. 1941. p. 3.

actually is a very limited form of accident and health insurance with its benefits realizable only in case of accident or sickness requiring hospital care. As in other forms of limited insurance, it leaves the person unprotected against benefits to replace lost earnings. There can be no reasonable comparison between these various forms of piece protection and the general accident and health insurance of the standard full coverage type. They are hardly of the same family.¹

There is great variation among health and accident policies. Faulkner reports that in a recent survey of over 300 policies issued by over 50 companies, no two policies were found exactly alike. Some companies have had as many as 25 or 30 contracts for sale at the same time. Competition among companies is the reason for this diversity.²

2. Lack of family coverage. Each commercial policy usually covers only one person. There are no family policies. Additional policies must be taken out to cover the whole family. The idea is, of course, that insurance on the breadwinner is most important in order to cover loss of his income during the period of illness. This feature is of less importance to farm families than to urban families. What farm families want is provision of medical services.

3. Prohibitive cost. The cost of commercial insurance, even on the group basis is prohibitive to many families. The annual premium is about \$50.

A study by the Metropolitan Life Insurance Company in 1929 showed that health and accident policies did not reach low income families.³

¹LaMont, op. cit., p. 5, 6.

²Faulkner, Edwin J. Accident and health insurance. New York, McGraw-Hill Book Co. 1940. p. 50.

³Unpublished study cited by Epstein, op. cit., p. 441.

4. Relative adequacy. There is some question as to the adequacy of protection of the majority of families by voluntary, commercial insurance.

Adequacy of commercial insurance. Concerning the adequacy of private insurance, the Social Security Board states:

Private insurance protection against the risk of wage loss from sickness or disability is limited in scope and content. Permanent disability insurance is very costly and in 1943 could hardly be bought on an individual basis. Many individual accident and sickness policies cover disabilities resulting from accidents only. In 1943 about six million persons were covered by group accident and sickness insurance affording some temporary protection against income loss during sickness and, in some cases, reimbursement for the costs of hospital care and physicians' services. Accident and health insurance companies and accident and health departments of life insurance companies paid approximately \$220,000,000 in 1943, part of which represented survivor payments. Life insurance companies paid benefits of about \$90,000,000 under disability clauses included in life insurance policies and disabled holders of life insurance policies benefitted from a waiver of premiums of about \$18,000,000.¹

According to the Social Security Board, not more than four or five million persons were covered by voluntary medical care insurance. In most cases such insurance was restricted to sur-leaf or other limited varieties of service.²

Place of commercial insurance. It is likely that commercial insurance has an important place in protection of families. It may be, however, that its place is complementary to some other methods of paying for health services. It cannot at present be relied on to provide basic health services for the majority of people.

¹U.S. Social Security Board. Social security status of the population in 1943. Social Security Yearbook, 1943. Washington, D.C. 1944. p. 21.

²Ibid., p. 21.

Non-profit Associations Employing Insurance

Principle

One method proposed for combining the elements of elimination of risk and the prepayment principle is the non-profit organization sponsored by a professional group. A non-profit organization is defined as a private agency providing services, no part of the net earnings of which inures to the benefit of any private shareholder or individual. In this section will be discussed the Blue Cross hospital service plan of the American Hospital Association and various plans established by component groups of the American Medical Association.

Non-profit associations in a broad sense include, of course, the consumer cooperatives discussed in the preceding chapter. The present discussion concerns plans which cover a larger group of people, and usually a larger geographic area than does the small cooperative. Such cooperatives as Group Health, Inc., and the Ross Loos Clinic, discussed in the preceding chapter, include a large number of people. The non-profit associations discussed here are not, however, cooperatives. Cooperative groups may subscribe to the plan but the organization providing the insurance is not a cooperative.

Two important non-profit plans using the insurance principle are discussed in this chapter: the Blue Cross hospital service plan and various medical service plans sponsored by medical societies. The cooperatives discussed in the preceding chapter are closely related. It will be remembered that some small cooperatives using the prepayment plan ceased to operate

when the Blue Cross plan became available and the same purpose could be met by application with the larger group.

Blue Cross hospital service plan

The Blue Cross hospital service has become increasingly important within the past few years. There has been much of interest in the plan in Iowa.

Definition and purpose. The Blue Cross plan is a system of non-profit corporations sponsored by hospitals, the medical profession, and civic leaders for prepayment of certain hospital benefits. It provides service benefits rather than a cash indemnity for hospital care. Benefits are guaranteed by means of contracts between each corporation and member hospitals.

The major differences in coverage between the non-profit hospital plan and insurance sold by stock and mutual insurance companies is that in the former case the benefits are in the form of services rather than cash payment toward health services or to reimburse loss of wages.

The Blue Cross Plan has two purposes: (1) providing prepaid hospital service on a family budget basis, and (2) aiding the stabilization of hospital income. The American Hospital Association states:

The Blue Cross movement was conceived by American hospitals as a means of making hospital care available to a greater portion of the population through utilization of the prepayment principle.¹

¹American Hospital Association. American Hospital Directory, p. 98.

History of Blue Cross plan. The plan in 1920 originated in Dallas, Texas, when a group of teachers made arrangements with Baylor University for the prepayment, on the semester basis, of \$3 per member for 21 days of hospital care for any member of the group who might need it. The idea was tried out with a group of hospitals in Sacramento, California, in 1932 and in Essex county, New Jersey, in 1933. Similar plans soon followed in St. Paul, Minnesota; Durham, North Carolina; and New York City.¹

In 1933 the American Hospital Association developed a set of standards for the organization of plans which would be acceptable for endorsement by hospitals. The standards include the following characteristics: adequate representation of all important groups in the community concerned with the provision of hospital care, both professional and lay groups; non-profit organization and operation; availability of benefits in service rather than cash, guaranteed by contracts between subscribers and member-hospitals within the area where enrollment occurs; free choice of hospital and physicians, with all hospitals of standing permitted to participate in the plan.²

In 1937 a Hospital Service Plan was established by the Association, aided by a grant from the Julius Rosenwald Fund.³

¹ American Hospital Association. Hospital Service Plans Commission. Blue Cross hospital service plans. Chicago, The Association. 1944. p. 7, 8. See also Pink, Louis H. The story of Blue Cross; on the road to better health. Public Affairs Pamphlet No. 101. 1945. p. 1-3.

² a. American Hospital Association. American Hospital Directory, p. 98.
b. Rorem, Rufus C. Community hospital and medical plans. Chicago. American Hospital Association. 1944. p. 7, 8.

³ a. American Hospital Association, American Hospital Directory, p. 98.
b. Rorem, Rufus C., Director, Hospital Service Plan Commission, American Hospital Association. Chicago, Ill. Information on Blue Cross plans. Private communication. 1945.

Benefits. Services guaranteed by the Blue Cross are described as follows by the American Hospital Association:

The various Blue Cross Plans offer similar benefits to their subscribers. Typically, they furnish complete hospital care for three or four weeks per person per year, many also providing extended discount periods from 90 to 180 days following the time when full coverage is provided.

Benefits ... include ... normally all items which typically appear on a hospital bill presented to or payable by a patient. As to types of illness covered, Blue Cross benefits apply to all accidents and illness normally admitted in the acute general hospitals except those covered by state and federal workmen's compensation laws or those which a subscriber receives by virtue of some federal or state law.

Maternity protection is regularly a part of the Blue Cross benefits ... Blue Cross plans have regularly provided out-of-town benefits in the form of allowances toward emergency hospital bills and arrangements are now being developed between plans to provide out-of-town benefits equal to those which the subscriber would receive in his own community.¹

Costs. In general the subscription rates in Blue Cross plans in the United States are approximately one per cent of the family income for the people insured.² They are about \$25 per family.

In one of the Iowa Blue Cross plans, the costs per year are \$15 for an individual or \$27 for a family.³

Eligibility and methods of enrolling. For the most part, Blue Cross plans are open only to groups, such as employees of a business establishment. Urban groups are easier to reach, which helps to explain why farm groups did not at first join Blue Cross. During the past five or six years, however,

¹American Hospital Association, American Hospital Directory, p. 102.

²Ibid., p. 102.

³Neubrand, Dortohy, Statistics Dept. Associated Hospitals Service, Inc., Sioux City, Iowa. Information on rural family enrollment in Blue Cross. Private communication. 1945.

farm groups also have been enrolled.

Farm people enroll through Farm Bureau groups, Farmers Union, Granges, cooperatives, creameries, banks, or other well-organized farmer-business groups. About two-thirds of the farm families enrolled in the Blue Cross in Minnesota are members of Farm Bureau groups.¹ Nearly all of those in Iowa are Farm Bureau families.

In some cases farmers enroll in Blue Cross through banks, authorizing the bank to make periodic deductions from their checking or savings accounts for fee payments. In areas where farmers enroll through creameries or cooperatives, periodic deductions are made from cream or grain checks to pay the fees.²

In Iowa, Blue Cross plans have been sponsored by the Iowa Farm Bureau Federation, in particular by the Women's Committee. County health improvement associations are organized, open to both Farm Bureau members and others. Although the Blue Cross started in Iowa in 1939, the services were not generally available to farmers until 1944.

Of Blue Cross plans in operation at the beginning of 1945, 29 offered services to individuals.³ One of the two Iowa plans offers services to self-employed or individually employed persons as well as to groups, so that individual farmers are eligible.

¹Liebeler, Virginia M. How the Blue Cross came to rural America. The Modern Hospital 62, no. 2:55. 1944.

²Ibid., p. 54.

³American Hospital Association Hospital Service Plan Commission. Hospital bill protection available to small groups and individuals. Blue Cross Protection 1, no. 3:3. 1944-45.

Pink reports that experiments were being made in 1944 in organizing groups on a community basis as well as through an occupational group. Examples are the Maine Hospital Plan, and the North Dakota, Kansas, St. Louis, Massachusetts, Western New York, and Northern Illinois Plans.

If communities can be enrolled in voluntary plans there is less need for a compulsory plan. The number of people included may provide a large enough coverage to give the advantages of widespread enrollment. Pink estimates that 50 per cent of a community must be enrolled to alleviate the danger of having only the poorer risks enrolled.¹

Extent of Blue Cross. At the beginning of 1945, there were 84 Blue Cross plans in 42 states, the District of Columbia, Puerto Rico, and seven Canadian provinces. There were 16.5 million persons insured, slightly more than 10 per cent of the total population. There were 3,215 hospitals involved.²

In Iowa 100 hospitals, including the State University Hospital, were Blue Cross. Their locations are indicated in Figure 32.³

In nine states, 23 to 36 per cent of the population was enrolled in Blue Cross plans in 1945. Rhode Island had the largest proportion of population so insured. Next in order were Delaware, Ohio, Connecticut, Colorado, Minnesota, Massachusetts, Michigan and New York. In Iowa 10 per cent of the population was enrolled.⁴ Nineteen states had proportionately more

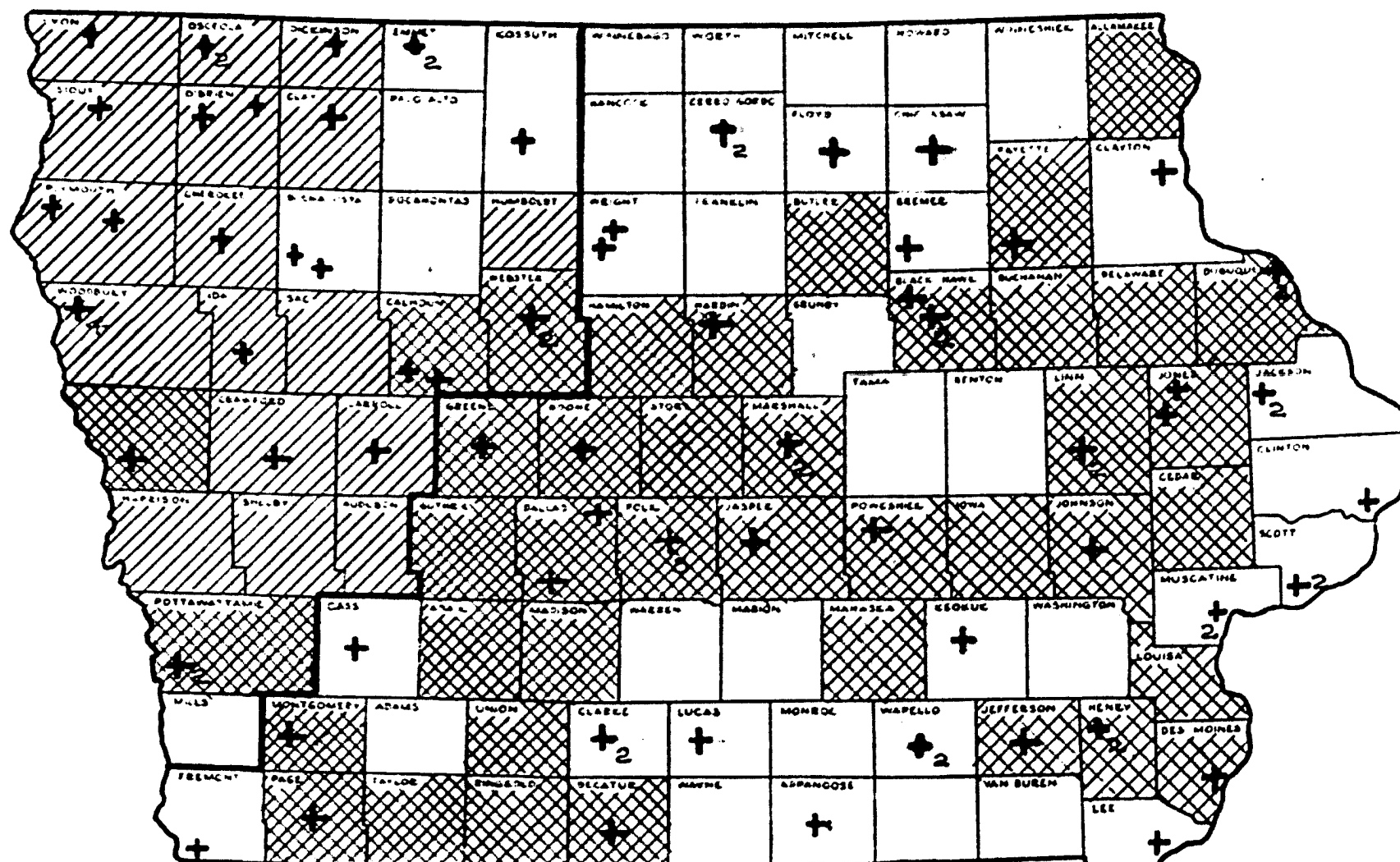
¹Pink, Louis H. *Freedom from fear*. New York. Harper and Bros. 1944. p. 32, 33.

²American Hospital Association. Hospital Service Plan Commission. *Non-profit association at work*. Blue-Cross Protection 2, no. 1:2. 1945.

³Neubrand, *op. cit.*, and Lachner, Director of Public Relations, Hospital Service of Iowa, Des Moines, Iowa. *Information on Iowa Blue Cross Plans*. Private communication. 1945.

⁴Lachner, *op. cit.*

488



- + BLUE CROSS HOSPITAL
 COUNTIES IN WHICH HEALTH ASSOCIATIONS
 HAVE BEEN ORGANIZED BY FARM GROUPS
 COUNTIES IN WHICH NO FARM GROUPS ARE
 ORGANIZED BUT INDIVIDUAL FAMILIES BELONG
 TO BLUE CROSS

Source: (a) Lachner, Anne, ²+ Des Moines, Iowa. Information on Blue Cross Plan. Private communication. 1945. (b) Neubrand, Dorothy, Statistics Dept., Associated Hospitals Service, Inc., Sioux City, Iowa. Information on rural family enrollment in Blue Cross. Private communication. 1945.

subscribers to Blue Cross plans in 1945 than Iowa had. It is to be noted that the northeastern states had the greatest number of participants.

According to the American Hospital Association, there are two general methods of approach to the enrollment of farm people in Blue Cross plans. In one, the farmers are regarded as a special economic group. Organizations such as farm bureaus, granges, unions, and cooperatives are used as a basis for obtaining application and collecting subscriptions. In the other, farm families are regarded as a part of the town and farmers apply through some agency in the town, such as banks, gasoline service station, or newspaper office.

The first rural group enrolled through a farm bureau was the Four-Town Farm Bureau Unit of Hennepin County, Minnesota. In Hillsdale, Michigan, farm people were enrolled through a cooperative organization, the Mutual Fire Insurance Company.¹

As a result of the cooperation of Granges, Farm Bureaus, Farmers Unions, cooperatives, and Farm Security Administration, rural membership in Blue Cross now totals 750,000 persons, exclusive of residents of villages and small towns.²

In 1945 Farm Bureau Federations in 20 states were sponsoring Blue Cross plans.³ Minnesota is one of the states in which the Blue Cross plan has spread among rural areas. It is estimated that approximately 40,000 Minnesota Farm Bureau men, women and children were covered in about 9,500

¹Larson, Gus. Farmers can have better medicine. Country Gentleman 115, no. 10:70. 1945.

²American Hospital Association. Hospital Service Plan Commission. National Grange endorses voluntary health services. Blue Cross Protection 1, no. 3:4. 1944-1945.

³Smith, Joyce. Blue Cross for rural America. The Nation's Agriculture 19, no. 9:8, 19. 1944.

contracts in 1945. In toto, the enrollment for the state was about 640,000. This means that about six per cent of the insured were rural people. There were 69 county Farm Bureaus providing Blue Cross service for their members, involving 45 local units, usually on a township basis. In addition, there were services for members of other rural organizations, e.g., local granges, Farmers Union, and cooperative creameries.¹ The first rural Blue Cross units in Minnesota were organized in 1938.²

In Iowa the two Blue Cross services were not in general available to rural families until 1944. The growth since that time has been quite rapid. As indicated in Figure 32 there were in 1945 counties with farm groups enrolled and others with individual farmers enrolled. In addition, counties were in the process of organizing member groups.

In June 1945, a total of 968 Iowa farm families, with 3,763 persons, were enrolled in the 27 counties in one of the Blue Cross plans in the state, approximately five per cent of the total enrollment.³ Altogether there were over 17,285 contracts covering 40,009 persons in the 27 counties served by the plan. At the same time, in the other Iowa Blue Cross plan, serving 72 counties, there were approximately 7,700 farm families in a total of 25,000 families enrolled. These included around 2,000 persons in farm families and over 200,000 in urban families. It was estimated that as of September, 1945, there were slightly over 270,000 Iowans protected by Blue Cross. There was a little more than 10 per cent of the

¹ Kirkpatrick, K.A. Minneapolis, Minn. Information on rural membership in Blue Cross plans in Minnesota. Private communication. 1945.

² Ibid., Pamphlet, p. 16.

³ Neubrand, op. cit.

total population.¹

Control of Blue Cross. Control of Blue Cross plans may be considered from several aspects: legal status and regulation by government; ownership and control of Blue Cross control by member hospitals.

The legal status of Blue Cross plans has been expressed thus by the American Hospital Association:

... in terms of legislation authorizing or permitting its operations as follows: (a) previously existing laws covering non-profit corporation; (b) previously existing laws applicable to stock and mutual insurance association; (c) special legislation passed to permit the establishment and to regulate the activities of non-profit hospital service laws. Some of these special laws are included in the 'Insurance Codes' of the various states; others are not. But in each case the Insurance Department exercises important permissive and disciplinary functions with respect to non-profit hospital service plans.²

A model incorporation law for non-profit hospital service plans has been prepared by the Hospital Service Plan Commission of the American Hospital Association. It was submitted to the National Association of Insurance Commissioners in hopes that all states might be encouraged to adopt laws of regulation providing for supervision by state insurance departments.³ There has been some difference in opinion as to whether such plans are insurance organizations or merely corporations engaged in distributing hospital services.⁴ That is the question of whether a

¹ a. Beeler, O.W. Hospital Service of Iowa. Des Moines, Iowa. Information on enrollment in Iowa Blue Cross plans. In conference. 1945.

b. Lachner, op. cit.

² American Hospital Association, Blue Cross hospital service plans, p. 30.

³ Burns, William J. The Michigan enabling act for non-profit medical care plans. Law and Cont. Prob. 6:561. 1939.

⁴ Ibid.

medical service plan should be subjected to special regulation as insurance or considered merely as a service agreement.¹

In most of the states the Blue Cross plans, as in Iowa, are under the supervision of the state insurance departments. In some they are under welfare departments. Special enabling acts by state legislature are the basis for control except in a few states. The first state enabling act for non-profit hospital service plans were passed in New York in 1934. By 1944, 29 states had passed such laws.²

The Iowa enabling act was passed by the General Assembly in 1939.³

Five states have ruled that such plans are not insurance and may be operated under general corporation laws, which would make them exempt from some regulations covering stock and mutual insurance companies. Eleven other states require that hospitalization insurance be furnished only by stock and mutual insurance companies, whether benefits are in the form of services or cash indemnity.

In most states hospital service plans are exempt from state and local taxes.⁴ In Iowa, although such an organization is declared to be a charitable and benevolent institution, its property and funds are not

¹ Ibid.

² American Hospital Association, Hospital Service Plan Commission, Blue Cross hospital service plans, p. 28.

³ Iowa. Code of Iowa, 1939. Title XX, Ch. 403. Sec. 8895.01-8895.15. 1939.

⁴ American Hospital Association, Hospital Service Plan Commission. Blue Cross hospital service plans, p. 30, 31.

exempt from taxation.¹

If hospital service plans are organized to meet the requirements of an organization for social welfare, as described in Section 191(8) of the U.S. Revenue Act of 1936, they are exempt from federal income taxation.² They are not exempt from liability for social security tax provision, since they are classified as "charitable organization" under Title IX, Section 907(c) of the Social Security Act. In many states in which enabling acts have been passed, such plans are exempt from capital stock and corporate taxes which are not assessed against other charitable and benevolent institutions.³

Another question concerning medical service plans is whether they involve corporate practice of medicine. Such practice generally has been held by courts as undesirable.⁴

A third question relates to the responsibility of physicians under a medical service plan. For example, who is liable in case of malpractice, the corporation or the individual physician? There is also the question of liability for fulfillment of services offered under the contract.

Technically Blue Cross is owned by its members. Actually, the board

¹ Iowa. Code of Iowa, 1939. Title XX. Ch. 403.1. Sec. 8995.15. 1939.

² American Hospital Association, Hospital Service Plan Commission, Blue Cross hospital service plans, p. 30, 31.

³ Ibid.

⁴ Burns, William J., op. cit., p. 561.

of directors acts as trustees for subscribers. The board represents, in general, all interested groups.

The American Hospital Association exercises some control over Blue Cross plans in that the plans and the member-hospitals both must conform to standards set up by the Association.

Individual hospitals, of course, control the standard of specific services. It is interesting to note that of Blue Cross Hospitals in the United States and Puerto Rico, 40 per cent are under the control of non-profit associations and 25 per cent under church control. The others are governmental (nine per cent), proprietary (17 per cent), or unclassified (nine per cent). Of the bed capacity of Blue Cross hospitals, 45 per cent is controlled by non-profit associations, 34 per cent by churches, 11 per cent by governmental agencies, and six per cent by proprietary organizations, while four per cent are controlled by unclassified groups.¹

Appraisal of hospital service plans. Faulkner states that no development affecting disability insurance has created wider divergence of opinion among health and accident insurance men than the hospitalization movement.² In his estimation, both voluntary, non-profit hospitalization groups and commercial insurance carrier groups offering hospitalization insurance offer some definite advantages peculiar to themselves.³

¹American Hospital Association, American Hospital Directory, p. 100.

²Faulkner, op. cit., p. 298.

³Ibid., p. 298.

Question of sound actuarial base. Faulkner points out the possibility that the low rates of the non-profit associations may be inadequate to provide the benefits offered. Some insurance men believe that as long as new members can be added in large groups the inadequacy of the rates of associations will not be apparent, but when the growth which the associations have thus far experienced begins to slow down, the associations will find themselves in financial difficulties.¹ Some insurance men contend that the associations should look forward to an advancing loss ratio as their members become increasingly hospital-minded.²

In Iowa the Blue Cross organizations, instead of suffering loss, have been able to increase benefits. It is possible that the larger-than-expected use of hospitals by members of some non-profit associations is due to a backlog of previously unmet needs for hospital services and that the demand for services will level off. It is likely, also, that as benefits are increased to include preventive and diagnostic services and as people become educated to using preventive services, the per capita cost of providing needed hospital services may become less.

Family coverage. Non-profit hospital association benefits include dependents. Contracts are offered on a family basis as well as to individuals. In commercial insurance each person must have a separate policy. Non-profit insurance coverage includes a wider range of persons at a lower per capita rate.

¹Ibid., p. 299.

²Ibid.

Period of hospitalization covered. These plans do not offer as long a period of hospitalization as do most commercial insurance policies. Faulkner points out that they usually offer 21 days of hospitalization, whereas insurance companies offer a 31 to 70 day limit.¹ However, the number of days offered per family in each contract may be as much as commercial insurance offers since the 21 days is available for each person in the family. Then, too, the first days of hospitalization are covered. Most commercial policies exclude the first two weeks of hospitalization, the argument being that "the true important protection is against the prolonged disability which requires longer than average hospitalization."² It is likely, however, that in many cases prompt hospitalization would prevent need for a long period of hospitalization. Many persons will be more likely to receive prompt treatment if its expenses are covered by the prepayment plan.

Question of insurance function. Insurance companies argue that indemnification of loss due to hospital care is an insurance function, one for which hospitals were not established and which they are not qualified to perform. It is sometimes argued that placing hospital-service associations "in control of" the service of the member hospitals interferes with their medical practice.³ There seems to be little basis for this argument.

¹ Ibid., p. 300.

² Ibid.

³ Ibid., p. 302.

Although the American Medical Association in general approves the hospital-service plan, the Bureau of Medical Economics, American Medical Association has stated:

The conclusion ... is that considerable doubt is cast upon the wisdom of hospitals' rushing into hospitalization insurance, when insurance companies have feared to enter that field. Will hospitalization service corporations be able to avoid those forces which have created trouble for accident and health companies? The present accident and health policy is the result of almost a century of experience in the underwriting of personal accident and health insurance risks. Nearly everyone of the accident and health companies would be glad to write such a policy if a premium income in excess of claims and expense could be expected.¹

Beneficial effect on commercial insurance. Although there have been differences of opinion among commercial insurance companies concerning the soundness of non-profit hospital service plans, there has been general agreement that the immediate effect of their activities on commercial health and accident insurance has been beneficial in focussing public attention on this phase of the problem of personal security. Faulkner expresses the opinion that non-profit associations will adopt sound insurance techniques or that insurance companies will take over the desirable features of the associations and assume their work.² There is some feeling that non-profit associations should not be exempt from taxes any more than commercial insurance companies are.

¹American Medical Association, Bureau of Medical Economics, Group hospitalization, p. 217.

²Faulkner, op. cit., p. 304.

Medical service plans

There have been medical service plans available on a group prepayment basis for about 20 years. The medical profession has called them "group practice".¹

Definition. The term medical service plan has come to mean a plan for prepayment of certain medical and surgical services, sponsored by local or state medical societies and available to groups of consumers such as the employees of a business enterprise. The organization providing the service is incorporated as a non-profit association. The plan is similar to hospital service plans, also offered by non-profit associations. The two plans more or less supplement each other.

Participating physicians enter the plan on a voluntary basis. They receive payment for their services to low-income group members out of the pool of prepayments made by subscribers. It is expected by the physicians that at first the pro-rata of fees for schedule services may be less than the set amount but that it will rise as the plan gets under way and adjustments are made.

History. According to Rorem, experimentation by medical societies began with installment programs for people of limited means and group payment plans for public assistance beneficiaries with payments made into a common fund by a local relief or welfare association. Next came proposals

¹Rorem, Community hospital and medical plans, p. 5.

in western states, particularly California, to cover the regularly employed population. In California private clinic plans already were contracting with a large number of employed groups.¹

Medical service plans sponsored by local medical societies started in 1933 in Washington and Oregon. Most of these were on a county basis. Plans started later in Michigan and California were state-wide. In 1944 there were state medical service plans in nine states: California, Colorado, Delaware, Massachusetts, Michigan, New Jersey, North Carolina, Oregon, and Pennsylvania. Of these, the California and Michigan plans have the greatest number of participants. There were also regional plans with headquarters in Kansas City, Buffalo, Utica, and New York City.²

The Iowa Medical Service was organized in the summer of 1945.³ The Iowa State Medical Society approved of the plan in 1944. The General Assembly passed an enabling act in 1945,⁴ and the Iowa Medical Service was approved by the State Insurance Department in June, 1945.

Benefits. For the most part these plans are restricted to payment only of medical services incurred during hospitalization.⁵

¹Rorem, Community hospital and medical service plans, p. 6.

²Ibid.

³Olson, Martin D., President, Iowa Medical Service. Des Moines, Iowa. Information on Iowa Medical Service plan. Private communication. 1945.

⁴See p. 492.

⁵American Hospital Association. Hospital Service Plan Commission. Twenty-one medical plans are coordinated with Blue Cross. Blue Cross Protection 1, no. 3:3. 1944-1945.

The California Physicians Service, San Francisco, provides mainly surgical benefits for hospitalized patients, although medical coverage including home and office calls is available at additional cost.¹

The Michigan Medical Service, together with the Michigan Hospital Service, a Blue Cross plan, first offered three types of plans: (1) hospital service only; (2) hospital service plus surgery, obstetrics and diagnostic services during hospitalization; and (3) hospital and medical service in the hospital, in the home, and in the doctor's office.

Due largely to a backlog of unmet medical needs, the demands for medical services were so great that physicians were unable to get as much income as under the fee-for-service system and many withdrew from the plan. The comprehensive service plan was abandoned entirely and a surgical plan substituted which includes such services as X-ray, anaesthesia, pathology, and obstetrics. It is hoped that a more comprehensive plan to include all expenses connected with a hospitalized illness may be presented later.²

The Iowa Medical Society offers the following services of physician:

...surgical services (operative and cutting procedures for the treatment of disease or injury, and treatment of fractures and dislocations) ... obstetrical services (... or any condition

¹ Pink, Freedom from fear, p. 107.

² Statement of Graham Davis in Farm Foundation, op. cit., p. 92-94.

arising from pregnancy or childbirth); ...X-ray examination... in connection with the above ... not to exceed \$15 for any one illness or accident; administration of anaesthesia ... in connection with the above but not to exceed \$10 for any one illness or accident.¹

The Iowa benefits do not include service for industrial injuries or diseases for which the subscriber is entitled to benefits under workmen's compensation laws or services available without cost to the subscriber by compliance with laws or regulations enacted by any governmental body. They do not include hospital, dental, or nursing services. They do not include medicine, drugs, serological products, appliances, eye glasses, materials or supplies, payment for blood, blood donors or blood plasma. They do not include radium treatment, therapeutic X-ray, oxygen tent or oxygen therapy, physiotherapy. They do not pay for consultation or diagnostic procedures or for surgical assistants.

Subscribers choose their own doctors. If a doctor is chosen who is not participating in the plan, the Service will pay 75 per cent of the prevailing rate of payments set up in the plan.

Cost. Two examples are cited to indicate costs to subscribers of medical service plans. Premiums in the California Physician Service are \$24 per year for a family, with \$9 extra for certain medical service.² Fees for the Iowa Medical Service are \$12 per year for individuals and \$30

¹Iowa Medical Service. Subscriber's certificate: surgical and medical. Des Moines, Iowa, The Service. 1945.

²Pink, op. cit.

per year for families including both parents and all unmarried children under 19 years of age.¹

Eligibility. Medical Service plans thus far are available only to low income groups. Although members of some groups are accepted who have higher income, extra charges for medical services may be made to their subscribers by the physician. In the California Physician Service, for example, eligible families include those with incomes under \$3,000 per year, although families with higher income may become subscribers subject to extra charge by physicians for service received.² The services of the Iowa Medical Service plan are available to groups of individuals having an average annual income not over \$1,500 or families whose average income is not over \$2,500. Subscribers in the group who have incomes greater than the above limits may be charged more by physicians.

For the most part, medical service plans are more available to urban than rural families. In the Iowa plan only employed groups are eligible and 75 per cent of the individuals must subscribe or the plan cannot be sold. The Service hopes eventually to enroll rural groups through the Health Improvement Association already organized or being organized in various counties of the state for the purpose of joining Blue Cross plans.³

Extent of enrollment. Medical service plans have not as yet expanded

¹Iowa Medical Service, op. cit.

²Pink, Freedom from fear, p. 107.

³Olsen, op. cit.

as much as hospital service plans have. There were, in 1945, 31 medical service plans in 20 states, besides plans in two provinces of Canada. The total enrollment was approximately 1.8 million.¹ The largest group is the Michigan Medical Service plan, which had, in 1945, approximately 842,000 members. Next in size were: the California Physicians Service, which had, in 1945, approximately 162,000 subscribers; the Massachusetts Medical Service, with about 153,000, and the United Medical Service of New York, with nearly 128,000 members. In all cases the members were, for the most part, industrial workers rather than farmers. The California Physician Service has a department for farm people in the F.S.A. The Iowa Medical Service in November 1945 had less than 500 subscribers.² It had been in existence only since July, 1945, however.

Control. Most of the medical service plans have been established under special enabling acts similar to those covering non-profit hospital service plans. The Iowa act was passed last January, amending the enabling act for non-profit hospital service associations to include medical service plans as well.³

In 1941 several state medical societies introduced bills in state legislatures to place all voluntary health insurance plans under the

¹a. Rorom, private communication, 1945.
b. Pink, Freedom from fear, p. 107.

²Olson, op. cit.

³Iowa General Assembly. Acts 51:276-279. SF 127. 1945.

control of state medical societies. These bills were patterned after that passed in New Jersey.

Coordination with Blue Cross plans. In some states medical societies are working in close cooperation with Blue Cross plans to develop medical and surgical prepayment plans. The purpose is to complement hospitalization prepayment plans. In 21 states, including Iowa, medical service plans are available through Blue Cross plans.¹ For most of the plans, policies are made by the boards of directors controlled by physicians, but the management and selling are handled by the Blue Cross organization.²

Appraisal of medical service plans. Medical service plans have been sponsored by medical societies partly as the answer of organized medicine to the possibility of so-called socialized medicine, which many fear may result from such proposed legislation as the Wagner-Murray-Dingell bill.

As with other plans for meeting the family problems of paying for health services, there are pros and cons concerning medical service plans.

Question of sound actuarial base. Faulkner raises the question of whether medical service plans have been sufficiently tested by experience to prove whether or not they are a sound method of providing medical care on a prepayment plan. He points out that many questions which have been raised concerning underwriting procedure, inherent insurability of the hazard, effect on preventive medicine, and quality of medical service offered,

¹American Hospital Association, Hospital Service Plan Commission, 21 medical plans, p. 3.

²Pink, The story of Blue Cross, p. 22.

as well as costs of administration, have yet to be answered.¹

Form of benefits. In general, the American Medical Association is opposed to group service plans. It favors fee-for-service payment to the physician so that he may control his practice and fix charges. Most medical prepayment plans are organized on this basis. Specified services are prepaid, i.e., the payment made by the consumer covers them: the physician, however, is paid from the fund on the basis of fees for services rendered. It is possible as suggested by Pink that if medical plans were organized to give services rather than cash benefits, more people might be able to have the services.²

Coverage. At present the medical benefits offered by many services are too narrow in scope, although they doubtless are as broad as they can be until an actuarial basis for them has been worked out. The benefits of the Iowa Medical Service, for example, cover mainly surgical services connected with hospitalization rather than medical services, which constitute the main work of the general physician. They do not cover ordinary consultation and diagnostic service, nor ordinary medicine, drugs, and other supplies. They cover medical service only for hospitalized patients after three days in the hospital. The subscriber must pay for the first three days of medical care. This tends to make some families avoid having the service.

Income limit. Another characteristic which seems undesirable to some people is the low income limit. It is felt that if the services were available also to families with higher incomes, more people would respond to the plan.

Family rather than individual coverage with each contract is an advantage of the medical service plan over the commercial policy.

¹Faulkner, op. cit., p. 293.

²Pink, The Story of Blue Cross, Blue Cross. p. 22, 23.

Lack of availability to rural groups. The Iowa Medical Service is at present of little value in rural areas. For one thing, its services are available to groups rather than to individuals. In 1945 only groups of 50 or more subscribers were accepted. This tends to limit the services to urban groups such as factory or office employees. It is likely that after the plan is under way it will be made available to rural families as well.

Summary and Conclusions

Insurance is an instrument for the distribution of the cost of a risk which is measurable, but which is uneven and unpredictable in its incidence, in such a way that the total cost is spread among all members of the group and over a period of time. There is some question as to the extent to which medical and allied health services are of a type to which the insurance principle can be applied. Present programs would have to be analyzed carefully and expanded to give broad coverage on a sound actuarial basis before the potentialities of insurance for health could be realized.

Commercial insurance has a place in the provision of security against sickness and accident. There are, however, certain weaknesses in total reliance upon the type of protection.

There are certain inadequacies in these commercial policies, advantageous as they are. Because of its cost, private insurance reaches only a small proportion of the population. It reaches, in the main, families with relatively high incomes, and but a portion of these. It offers only

limited protection, mainly in the form of cash benefits, and does not in general cover medical service costs themselves. As a rule, it covers only the breadwinners and does not include dependents.

It is estimated that not more than four or five million persons in the United States are covered by voluntary medical care insurance, and this is largely limited to surgical or other limited varieties of service.

It is likely that commercial insurance is not sufficient for farm people.

Data are not available on the relative number of farm people protected by commercial insurance policies. There are a few cases of group insurance issued to people in farm organizations. The insurance issued to members of the Pure Milk Association, a commercial milk producers' cooperative, serving the Chicago area, by the Great Northern Life Insurance Company, and that issued to county farm bureau groups in Connecticut, Delaware, Ohio, Maryland and Vermont by the Farm Bureau Insurance Companies, are examples.

During the last 15 years, and particularly during the last five years, there has been a development of non-profit associations employing the insurance principle to provision of medical and hospital services. In addition to the small cooperatives discussed in an earlier chapter there are two broad types of organizations of this nature: (1) The Blue Cross plan for insuring hospital services and (2) medical service plans sponsored by medical societies. In both of these plans, benefits are in the form of actual services rather than of cash indemnities.

Also, beneficiaries include legal dependents of the insured, which is not the case in commercial insurance. For the most part, eligibility to membership in medical service plans is limited to low income families. In both types of plans membership is restricted largely to groups of families, although in a few hospital service plans individuals may enroll.

Farm people enroll through Farm Bureau groups, Farmers Unions, cooperatives, creameries, banks, or other organized groups. In Iowa, as in Minnesota and several other states, the Farm Bureau Federation sponsors the formation of health associations by its members for enrollment in Blue Cross.

The costs of Blue Cross hospital benefits average about \$15 per year for individuals and \$25 for families. Costs for the other type, medical service plans, vary somewhat, according to services included. They range from \$12 to \$40 per year per family.

In most states, as in Iowa, such non-profit associations as the Blue Cross and medical society plans are under the supervision of state insurance departments. Special enabling acts by state legislatures are the basis for control except in a few states. In 1944, 29 states had enabling acts for hospital service organizations. Enabling legislation for hospitalization services was passed in Iowa in 1939; for medical service plans in 1945.

Blue Cross plans have grown much more rapidly than have medical service plans. Blue Cross plans have expanded particularly in the northeastern quarter of the United States. In nine states from a quarter to a third of the population is enrolled. In Iowa, the total

enrollment equals about 10 per cent of the population of the state.

Although Blue Cross started in Iowa in 1939, services were not generally available to farm families until 1944. In November, 1945 there were farm members of Blue Cross in 65 Iowa counties, two-thirds of the counties in the state.

In 1944 there were medical service plans sponsored by state medical societies in nine states. The Iowa plan has been organized in 1945 and has been in operation only a few months.

Non-profit associations of this type have not as yet proved their soundness, partly because of the newness of including service benefits. The principle is, in general, approved by both lay and professional groups, although the medical profession has been somewhat slow to approve and apparently has accepted such a plan as a less undesirable alternative than government-sponsored insurance.

Experience will determine whether or not the low rates of non-profit associations are adequate to meet demand for services which are guaranteed. In the short experience of one medical service plan, the Michigan Medical Service Plan, benefits had to be decreased: but in the case of several hospital services it has been possible to increase benefits without increasing costs to subscribers.

Family coverage in non-profit health service plans is an advantage over the single person coverage in commercial policies. The services covered are not as wide as families need. They are doubtless as wide as the limited experience of such plans will warrant at the present time.

In general, there is at present a place for both types of private insurance. Non-profit service plans may be the answer to provision of basic health services to families, with commercial policies offering additional benefits to some families. Government insurance, as discussed in the next chapter, is another alternative. A survey of rural families in Iowa with respect to types of insurance now carried, benefits guaranteed, costs, and use of benefits might be of value in analyzing needs of this type.

FEDERAL AND STATE ACTION RELATING TO CERTAIN
MEDICAL AND ALLIED HEALTH SERVICES, 1930-1944

At many places in the preceding chapters reference has been made to federal and state action relating to medical and allied health services. It is time to bring together references to government plans for provision of health services in order to see how they have developed and what their contributions are, and to explore their implications.

The first two sections of the chapter are introductory. Their purpose is to give some background for the sections which follow. One points out various elements of government action, some of which are familiar and have been typical of government action for a long time and some of which are new elements, in many cases controversial. The other presents a brief history of government action during the last thirty years, with emphasis upon developments since 1930.

The major part of the chapter describes specific federal action and proposals for further government action. It refers to some earlier discussion in order to bring together federal action and to show its pattern. There are sections on grants to state and local agencies relating to certain health services from 1930 to 1945, federal aid for provision of state and local hospital and health center facilities, coordination of federal action relating to health services, government-sponsored pre-payment plans for health services, and social health insurance. Two

sections are devoted to the latter, one for rather narrow health insurance programs and the other for wide rational health insurance.

The eighth section describes action by the Iowa General Assembly relating to certain health services, covering the period since 1930.

The last section deals with some of the issues involved in government action.

Old and New Elements in Government Action Relating to Health Services

Federal action relating to medical and allied health services has expanded some elements which were present earlier and has added some new elements. Public health work has expanded in the areas of disease control, public health nursing, maternal and child health, and crippled children program.

New elements include the following types of government aid:

1. Appropriations to state and local health units for new purposes, such as the construction of hospitals and provision of direct services to individuals, e.g., in various clinics.
2. Provision of credit of various types. Subsistence loans granted to individuals under the Farm Security Administration have included funds for health purposes. Loans have been granted to communities for construction of general hospitals or health services and for sanitation facilities.
3. Federal sponsorship and aid in establishing group prepayment

plans, mainly on an experimental basis. Examples are the Farm Security Administration health plans and other experimental units under the U.S. Department of Agriculture.

4. Proposals for compulsory health insurance, either in the form of grants in aid to state plans or in a broad federal health insurance system.

5. Allocation of physicians and dentists. This element appeared in 1943-1944 as an emergency program, because of shortage of medical and allied personnel in some areas due to the drawing off of personnel into military service. Although this program is temporary it might conceivably grow into a program for aiding in the distribution of physicians to localities where they are most needed.

6. Attempts to coordinate government action among various agencies.

Chronological Sketch of Recent Government Action Relating to Medical and Allied Health Services

In order to provide a framework into which to fit a discussion of types of government action a brief historical sketch will be presented of state and federal action during the past thirty years. The reader is forewarned that this resume involves some repetition, a disadvantage which is offset by the advantage of having a setting for the more complete discussion of types of government action presented later in the chapter. Only the more important developments are presented. In the case of a few of the significant bills which are discussed in some detail in later

sections, a slightly longer description is given here in order to present the general aspects of the bill a little earlier and in relationship to other bills. Less important bills, which are mentioned briefly in later sections, are omitted from this general picture.

1910-1920

At the time of World War I, there was much agitation for workmen's compensation laws and such laws were passed in many states. There was at the same time a growing interest in health insurance for workers, covering laborers in many industries but excluding agricultural laborers. Commissions to study health insurance were appointed in eleven states. Legislation was proposed in five states but none was enacted. No federal legislation in this area was introduced.

Probably as a result of World War I an act was passed providing for venereal disease control administered by the U.S. Public Health Service. This was the Chamberlain-Kahn Act of 1918. Funds were appropriated for only a short time.¹

1920-1930

During the fairly prosperous twenties interest in social health insurance lagged. The most important Congressional action related to medical and allied services was the Sheppard-Towner Act of 1921,² which

¹U.S. 40 Stat. 886. 1918.

²U.S. 42 Stat. 224. 1921.

provided grants-in-aid to states for programs in maternal and child health. Funds were appropriated under this act until 1929.

There was during this period some slight growth in rural public health units.

1930-1940

During the thirties came increased interest in social legislation. Impetus in this direction was given by the depression. New types of services were provided by federal funds.

Relief measures of early thirties. In the early thirties federal action took the form of (1) providing medical and allied care for relief families and (2) aiding in the construction of hospitals, and health centers and sanitation facilities as a part of a public works program to offer employment. This action gave expression to a changed concept of governmental responsibility, reflecting a change from the old concept of complete local responsibility for the care of the needy.¹

As discussed elsewhere in the thesis, the Farm Security Administration sponsored and in part subsidized cooperative group health programs.

The Federal Emergency Relief Administration program gave grants to states to aid in programs providing medical care for families on relief on the basis that "the conservation of the public health is a primary function of a government."² Federal contributions to relief medical

¹Beck, Dorothy Fahs, and Jessop, Mary F. Dental care for adults under specific clinical conditions. Lancaster, Penn. American College of Dentists. 1943. p. 26.

²U.S. Federal Emergency Relief Administration. Rules and regulations No. 7. (Original not seen. Cited in Cavers, op. cit., p. 621).

services ended with the discontinuance of the Federal Emergency Relief Administration but state plans set up along the line it laid down did continue. The Public Works Administration and the Works Projects Administration subsidized the construction of hospitals and health centers, and construction of water and sewage systems. A survey by the American Public Welfare Association in 1934 indicated that 29 states were operating general medical programs in conformity with federal regulations.

The National Youth Administration included in its program physical examinations of approximately 500,000 youths from 17 to 24 years of age. The N.Y.A. diagnostic and rehabilitation program was discontinued in 1942. The Civilian Conservation Corps program also included health work among young men.¹

Social Security Act, 1935. In 1934 the Committee on Economic Security was appointed by the President for the purpose of writing the Social Security bill. The bill as enacted in 1935 contained provisions for federal grants-in-aid to state and local programs for several health functions, including control of communicable diseases, maternal and child health programs, care of crippled children, school hygiene, environmental sanitation and public health.²

¹American Medical Association. N.Y.A. Health Program. J. Amer. Med'l Assn. 116:2511. 1941.

²U.S. 49 Stat. 629-633. 1935.

A section on health insurance had been expected in the Social Security Act but did not appear. Various reasons have been suggested for this omission. They include: (1) danger of overloading the program; (2) lack of working out of details of a proper plan; and (3) opposition of the American Medical Association. However, the American Medical Association did not appear at the Social Security Bill hearing in 1935. There was practically no opposition to the bill.¹

Under the Social Security Act the states are given wide leeway in the program to be carried on. The direct administration of the program is insofar as possible under state agencies already established.

National Health Conference, 1938. In 1938, after the passage of the Social Security Act, the President appointed the Interdepartmental Committee to Coordinate Health and Welfare activities.² The Committee consisted of representatives of the departments of the federal government which were concerned with health and welfare problems. Under this committee were appointed 14 technical committees to study various phases of the problem. Among these were committees on food and nutrition, crippled children, public health, safety education, and medical care. With the assistance of these technical committees a comprehensive program was prepared.³

¹Maslow, The background of the Wagner National Health Bill, p. 608.

²Set up by executive order No. 7481. Oct. 1938.

³Among the 14 technical committees under the Interdepartmental Committee to Coordinate Health and Welfare Activities were committees to study food and nutrition, crippled children, public health, and safety education. The Technical Committee on Medical Care was composed of the following: the four assistant secretaries to the Department of the Treasury, Interior, Agriculture, and Labor; the

In July, 1939, a National Health Conference, called by the President, was held to present and discuss the health and medical service needs in the nation and the reduction of economic burdens caused by illness as revealed by various studies, and to discuss the steps which can be taken to meet these needs, as proposed by representatives of the government and of the conference. The participants included representatives of various lay and professional organizations. An attempt was made to have representatives of a cross-section of American opinion.¹

It has been suggested that the major contribution of the National Health Conference was its bringing into the discussion of matters of health reform certain lay groups which play a large part in shaping legislative policy. Among these are farm groups, such as the American

(Footnote continued)

chairman of the Social Security Board, and, later, the Surgeon General of the United States Public Health Service and the Administrator of the National Youth Administration. (Wagner, Robert F. Extension of remarks on National Health Bill. U.S. Cong'l Record 84:A3976. 1939.) Beginning in 1937 the Committee had available the health studies of the Social Security Board and the National Health Survey conducted by the U.S. Public Health Service. (Wagner, Robert F. Statement upon introduction of national health bill. U.S. Cong'l Record 84:1982, 1937. See also U.S. Committee on Economic Development. Report to the President of the Committee on Economic Development. Washington, U.S. Gov't Print. Off. 1935, p. 41-43.)

¹Wagner, Extension of remarks, U.S. Cong'l Record 84:3977. Invitations were issued to 275 persons from the medical profession and public and private organizations interested in health and medical services and from agricultural and labor groups and other organizations. A total of 176 persons were present. (2) The criticism has been made that the conferees chosen were for the most part from those known to be favorable.

Farm Bureau Federation, and labor groups, such as the American Federation of Labor. It is believed that the conference resulted in a greater acknowledgement of unmet health needs and in focussing of public discussion on the problem of meeting these needs.¹

In July 1939, the President submitted to Congress a national health program recommended by the Interdepartmental Committee based on the results of the National Health Conference and subsequent deliberation.²

National Health Bill of 1939. The National Health Bill³ put into concrete form for legislation the national health program of the Interdepartmental Committee to Coordinate Health and Welfare Activities. It aimed at assisting the states in improving health conditions and services and in establishing insurance systems for insuring against wage loss due to temporary disability. It was in the form of amendments to the Social Security Act which would expand some of its functions and add some new functions. There were five principal parts to the bill:

1. Expansion of maternal, infant, and child health and welfare services.
2. Expansion of general public health services, including control of specific diseases.
3. Provisions for the construction and initial maintenance of needed hospital and health centers.
4. Provision of general medical care.
5. Provision of compensation of disability wage loss.

¹ Maslow, The background of the Wagner National Health Bill, p. 609.

² Wagner, Statement, 84:1982.

³ U.S. Cong'l Record 74:1375-1981. S1620. National Health Bill. 1939.

Nearly every title of the National Health Bill included the phrase "especially for rural areas and among individuals suffering from severe economic stress". Also, in each case the allotments were to be based on the population, number of individuals in need of health services, special health problems, and financial resources of the area.

The National Health Bill would have provided \$80 million the first year, with appropriations gradually increasing over a 10 year period. Matching of funds by the states was to depend on the relative ability of the states as determined by income per capita. For public health services and hospital construction there was to be matching funds by the states to equal from 33.3 per cent to 66.6 per cent of the federal grants; for programs¹ of general medical care, from 16-2/3 per cent to 50 per cent.

Decisions concerning specific types of services to be provided were to be left to the states applying for federal grants-in-aid. There was leeway allowed to the states for planning programs to fit their needs. Federal authority was to be vested in the agencies already administering the Social Security Act, i.e., the Childrens Bureau, the United States Public Health Service and the Social Security Board.

Hearings on The National Health Bill were held in the spring and summer of 1939.² In general, farm, labor, and other lay groups favored the bill. The official representatives of medicine and dentistry opposed the bill as it was then drafted.

¹Wagner, Statement, op. cit., 89:1982.

²U.S. Congress. Senate. Committee on Education and Labor. Hearings... Seventy-sixth Congress, first session, on S.1620 ... 1939.

The committee to which the bill was referred indicated that it approved the general purposes and objectives of the bill but stated that further study was necessary before recommendations could be submitted.¹

Federal acts relating to cancer and venereal disease control. In addition to proposals for government health insurance there were in the late thirties bills to extend the public health services. Among these were the National Cancer Institute Act of 1937, the Venereal Disease Control Act of 1938. These are discussed below.

State and local action in thirties. Parallel to proposals for federal action relating to medical and allied services there has been expansion of such action on the state and local levels. As discussed in Part III there has been fairly rapid expansion of local public health units and of State public health programs.

In 1939 several states passed enabling legislation for group prepayment plans. Iowa was among them. As discussed in the preceding chapter, some of these plans were sponsored by medical societies and others were plans such as the Blue Cross plan sponsored by the American Hospital Association.

1940-1945

Bills relating to hospital construction. Several bills have been proposed in Congress, increasing in number since 1940, to aid in the

¹U.S. Congress. Senate. Report no. 1139. [on 1620, National Health Bill] . Seventy-sixth Congress, first session. 1939. p. 1.

construction and initial maintenance of community hospitals and health centers. Chief among these are (1) The Wagner-George Bill of 1945, (2) the Lanham Act of 1940, relating to the construction or expansion of hospitals and health centers in areas with war industries, in which rapid increase of population has made such action desirable, (3) the Hill-Burton Hospital Construction Bill of 1945, and (4) part of the Wagner-Murray-Dingell Bill of 1945. These bills are discussed below. The last two are now before Congress.

Bills due to war. Relating also to aiding local areas to provide hospital and health centers is the Surplus Property Act of 1944, permitting sale of military and defense property to local communities, eleemosynary institutions, and non-profit associations.

The war precipitated some federal action to aid in the allocation of physicians and other professional personnel in areas where they are needed most. This work was done by the Procurement and Assignment Division of the War Manpower Commission.¹ It was directed by the U.S. Public Health Service.

There had been some thought that some such plan might continue after the war in order to aid communities to obtain such personnel and the personnel to find locations which are desirable. However, even before the war was over the program was curtailed. It is not likely that the plan will be used after the war.

¹U.S. Code 1940. Supp. IV, 1941-1945. Title 42. Sec. 46. 1945.

Bills to expand provisions of Social Security Act. Many bills to amend the Social Security Act of 1935 in order to increase its coverage and benefits have been introduced into Congress. The most important of these are the National Health Bill of 1938, and the Wagner-Murray-Dingell bills of 1943 and 1945.

The Wagner-Murray-Dingell bill of 1943 proposed to amend and extend the Social Service Act of 1935 by:

1. Establishing a unified National Social Service System;
2. Extending social security rights to individuals in military service;
3. Providing permanent disability insurance;
4. Providing unemployment compensation, temporary disability and maternity benefits;
5. Establishing a national system of unemployment offices;
6. Providing grants for medical education and investigation; and
7. Providing grants-in-aid to states for medical care of the needy.¹

The Wagner-Murray-Dingell bill of 1943 died in committee. It was² reinstated in 1945, with revisions which are discussed later in this chapter. The new bill shows a new emphasis on medical and allied services, as noted in the order of the sections which follow:

1. Grants and loans for construction of health facilities.
2. Grants to states for public health services.
3. Grants to states for maternal and child health, crippled children, and other child welfare.

¹U.S. Cong'l Record 89:5256, 5364, 51161, HR 2861. 1943.

²U.S. Cong'l Record 91:5076, 5079. S1050. 1945.

4. Comprehensive public assistance program.
5. National social insurance system, including prepaid personal health services, unemployment and temporary disability insurance, as well as retirement, surviving and extended disability insurance benefits.

Federal Grants to State and Local Programs for Certain
Medical and Allied Health Services

As indicated above, grants to state and local programs providing medical and allied health services are largely a development of the past 15 years. Such grants affect the provision of diagnostic and curative services, either by aiding the direct provision of the service by the community or by assisting in insurance plans for payment of services. In the present section are discussed grants which aid in direct services for expansion of (1) rural public health units, (2) maternal and child health programs, (3) crippled children's programs, and (4) expansion of disease control program. It is to be noted that this organization parallels the discussion of such services in Iowa, in Part II of this thesis.

Grants for expansion of local public health units

Action before 1930. The United States Public Health Service has from the first encouraged state and local public health work. Since 1902 there has been an annual conference of state and territorial health officers sponsored by the federal service.¹ There have been special

¹Maslow, The Background of the Wagner National Health Bill, p. 612.

surveys also. Bulletins and reports have been published.

Federal grants to state and local governments for health purposes, in general, were not given until the thirties. An earlier step in this direction was the program of demonstration projects in various states beginning in 1917. Congress later appropriated approximately \$300,000 annually for this program. Projects in establishing public health units in localities and operating them for a period of time were undertaken in the hope that the locality would, at the end of the demonstration, take over the responsibility for continuing the project.

There was a bill introduced in 1919 which would have provided federal grants of \$1 million annually for rural public health work. It did not pass, however.¹

During the depression of the early thirties the Federal Emergency Relief Administration gave some aid to rural public health work. One million dollars was granted for this purpose.²

Grants under Social Security Act

In 1935 the Social Security Act provided for the transition into continuous federal grants for establishing or expanding rural public health work. The major purpose of Title VI of the Act was to create functioning

¹HR 10510, introduced by Representative Mann, 66th Congress, First Session, 1919.

²U.S. Public Health Service. Annual report of Surgeon General, 1935. p. 67. (Original not seen. Cited in Maslow, Harold. The background of the Wagner National Health Bill. Law and Cont. Prob. 6:613. 1939.)

units of public health work in rural counties similar to those which already had been established in urban areas. The appropriations authorized amounted to \$10 million, of which \$2 million was to be used for research in developing improved methods of disease control and \$8 million for aiding in the development of local public health work. In 1939 the appropriation for the latter purpose was increased from \$8 million to \$11 million per year.¹ The funds, administered by the U.S. Public Health Service, were to be allocated according to population and financial needs of the localities. The matching of federal funds by the states was not required.

This was the first time that federal responsibility for the protection of the health of individuals within a state was established as a permanent policy. It was the first time that the federal government had participated in the creation and maintenance of administrative health services for this purpose.

Recent bills to increase grants. The Wagner-Murray-Dingell bill of 1945 would grant funds to assist state and local governments "to extend and improve public-health work by establishing and maintaining adequate public health services as rapidly as may be practicable under the conditions in the State, especially by improving such services in rural communities, in economically depressed areas, and in other communities where such services are below nationally accepted standards of adequate public-health services." (Sec. 314 (f), p. 35 of S1050).

¹U.S. 53. Stat. 1380. 1939.

Under this bill the Surgeon General would be authorized to appropriate each year a sum sufficient to carry out these purposes. Part of the sum, not to exceed \$5 million, might be used to provide for demonstrations and the training of personnel for state and local public-health work. Grants to individual states may be from 25 to 75 per cent of the total state expenditures for these purposes, depending upon the per capita income of the states.

Grants for maternal and infant care

Early appropriations. The Sheppard-Towner Act of 1921 provided \$124 million of federal funds annually to aid state maternal and infant hygiene programs. The funds were to be administered by the Children's Bureau of the U.S. Department of Labor. A Federal board of Maternal and Infant Hygiene also was provided, consisting of the Surgeon General of the U.S. Public Health Service, the Federal Commissioner of Education, and the Chief of the Children's Bureau.

These federal grants gave impetus to the development of child health centers during the twenties. During the period from 1921 to 1929 approximately 3,000 new permanent centers for child health and for maternity hygiene were established. All but three states cooperated with the program. However, when federal appropriations were discontinued in 1929,¹ the program declined.

¹U.S. 44 Stat. 1024. 1929.

It is interesting to note that the Sheppard-Towner Act was favored by the Catholic Welfare Agency, the American Federation of Labor, and the National Consumers' League. It was opposed by the American Medical Association and by conservative business interests.¹

Grants under Social Security Act, 1935. Title V of the Social Security Act of 1935 concerned maternal and child welfare. It revived the aid provided from 1921 to 1929 by the Sheppard-Towner Act, with larger appropriations. Under Title V, \$3.8 million was granted annually, beginning July 1, 1936. Each state was to receive \$20,000 annually. Another \$1.8 million was to be distributed according to the relative number of live births in the state. An additional \$980,000 was to be allotted by the Secretary of Labor according to the financial need of the state for carrying out its program. The first two appropriations must be matched by the states and localities; the last did not need to be. The funds were increased to 5.8 million by an amendment to the act passed in 1939.²

The Children's Bureau of the U.S. Department of Labor is charged with the federal administration of the funds. For approval by the Children's Bureau a state program must give some financial support in addition to the federal, and the plan must be administered or at least supervised by health agencies of the state. The state agencies have control over the appointment tenure, and payment of state and local personnel who administer

¹Maslow, The Background of the Wagner National Health Bill, p. 610.

²U.S. 53 Stat. 1380. 1939.

the system. The federal control extends only to the requiring of maintenance of certain standards of personnel and the requiring of reports from the state health agency upon request from the Secretary of Labor.

The Children's Bureau, in its administration of the funds, has emphasized the extension and improvement of local maternal and child health units, cooperation among medical, nursing and welfare groups and the development of demonstration services in needy areas and among needy groups. The establishment of maternal and child divisions in state health departments, extension of public health nursing, and development of training for doctors and nurses have been emphasized. The work has been largely educational and health supervision. In matters of medical care at child birth, nutrition work, and social work relatively little had been done.

Bills to increase funds. The National Health Bill of 1939 proposed increasing federal funds for maternal and child welfare to \$8 million the first year after its enactment, \$20 million the second year, and \$35 million the third year. Allotments to state were to depend on total number of births, number of mothers and children in need of state services, the special problems of maternal and child health, and the financial resources of the respective states. (Title V, Sec. 501-503.)

The Wagner-Murray-Dingell Bill of 1945 proposed granting of funds sufficient to aid states to (1) provide for the extension and improvement of local maternal and child-health services and facilities administered by local health units so that the plan will be in effect in all political

subdivisions of state not later than July 1, 1955; (2) provide for the development of demonstration services and training of personnel; and (3) provide that as services and facilities are furnished under the plan they shall be available to all mothers and children in the state or locality who wish to participate. The bill proposes provision for cooperation with medical, health, nursing, education, and welfare groups and, where necessary, for working agreements between public agencies providing such services. No specific amounts of appropriations for this purpose are given in the bill. (See. 501 and 502, p. 43-45).

Crippled children programs

Present status. Federal grants to aid state programs for crippled children began in the thirties. Such grants were made possible by Title V of the Social Security Act.¹ Two bills had been introduced in 1930 for the appropriation of funds to state and local programs for crippled children, but they were not passed.²

The Social Security Act of 1935 provided \$2.85 million for federal grants which was increased to \$3.87 million by an amendment to the Act in 1939. Under the 1935 provision each state was to receive \$20,000 and the rest was to be apportioned by the Secretary of Labor according to the

¹U.S. Code, 1940. Title 42. Sec. 161-1505. 1940.

²S 3336 and S 3639, introduced in 1930 by Senator Copeland. These bills would have provided \$3 million and \$6 million, respectively, for such appropriations. Seventy-first congress, second session. 1930.

relative needs of the states as determined by the number of crippled children, their need for treatment and the costs of the treatment. The funds were to be at least matched by the states and localities. They might be used for "treating crippled children and for providing medical, surgical, corrective and other services and care of facilities for diagnoses, hospitalization and after care for children who are crippled." The provisions were intended particularly for rural areas and areas suffering from economic distress. (Title V, part 2).

The funds provided by the Social Security Act gave impetus to the expansion of State programs for the care of crippled children. At first the full appropriations were not used. The requests from states for 1939, however, exceeded the appropriation allotted.¹

In 1939 Congress increased the appropriation to nearly \$3.9 million.²

Proposed increases in funds. The National Health Bill of 1939 would have increased these funds to a total of \$73 million during a three-year period. During the first year \$13 million would be available, \$9 million for medical care of children and \$4 million for services to crippled children; during the second year, \$25 million, with \$20 million for the medical care of children and \$5 million for services for crippled children; and during the third year, \$35 million to be divided between the two.

¹ Maslow, The Background of the Wagner National Health Bill, p. 612.

² U.S. 53 Stat. 1830. Sec. 504. 1939.

Thereafter "sufficient sums" for the program were to be appropriated as the Chief of the Children's Bureau deemed necessary.

The Wagner-Murray-Dingell bill of 1945 also included services for crippled children's act. No specific sums were stated. Grants were to be sufficient to carry out the purposes.

Grants for expansion of certain disease control programs

Federal action relating to disease control programs has expanded during the past decade. Much of it has been in preventive work and in research, e.g., the Interstate Malaria Survey, in which Iowa cooperated in 1940 and 1941.¹ Some has involved provision of diagnostic and curative services. Attention will be turned briefly at this point to federal action in control programs in venereal disease, cancer, and tuberculosis.²

Venereal disease control. The earliest federal provisions for direct diagnostic and curative treatment was for venereal disease. The Chamberlain-Kahn Act of 1918 set up a system of federal grants of \$1 million a year to aid state programs in the control of venereal disease.³ However, Congress soon permitted the grants to lapse. By 1925 no appropriations were made.⁴

¹Iowa State Department of Health. Biennial report, 1941/42:103. 1943.

²S194 was introduced by Senator Murray in 1941 to authorize research by United States Public Health Service relating to cause, diagnosis, and treatment of dental diseases. It passed the Senate but not the House. (U.S. Cong'l Record 87:4442. 1941).

³U.S. 40 Stat. 886. 1918.

⁴Maslow, The Background of the Wagner National Health Bill, p. 612.

In 1938 Congress re-established this service by passing the Venereal Disease Act granting \$3 million per year for venereal disease control work in 1939; \$5 million in 1940; \$7 million in 1941; and each year thereafter as needed.¹ At the hearings for the bill nobody appeared in opposition but several physicians and state medical societies appeared in favor of it.²

The 1945 Wagner-Murray-Dingell bill proposes that a "sufficient sum" be granted to state and local health units to assist in developing more effective measures for the prevention, treatment, and control of venereal diseases. The relative allotments would be made among the states according to the population, size of the venereal disease problems, and the financial need. (Sec. 314 (a) and (c), p. 32 and 34.)

Tuberculosis control. In 1944 Congress appropriated \$10 million for the fiscal year 1944-45 extending the tuberculosis control program of the U.S. Public Health Service. The appropriation may be used for "the prevention, treatment, and control of tuberculosis, including the provision of appropriate provisions for care and treatment, the training of personnel for state and local health work, the conduction of studies and demonstrations toward controlling the "spread of tuberculosis in

¹U.S. Code. Title 42, Sec. 24 and 25. 1940.

²U.S. Congress. Senate. Committee on Interstate Commerce. Venereal disease control. Hearings...Seventy-fifth Congress, third session, on 3290... Washington, U.S. Govt. Print. Off. 1938.

interstate traffic." The pattern is similar to that for venereal disease control described earlier.¹

Bills providing for the extension of the tuberculosis control program had been introduced earlier. In 1941, three such bills were introduced in the House.² The Bulwinkle bill introduced in 1944, proposed the establishment of a Tuberculosis Control Division in the U.S. Public Health Service.³

The 1945 Wagner-Murray-Dingell bill proposed grants of another \$10 million for aiding state and local health units for 1945-46 and "sufficient sums" each fiscal year thereafter. (Sec. 314 (b), p. 33).

Cancer control. The National Cancer Institute Act was passed in 1937.⁴ In 1940 a program of cancer research and control was set up in the United States Public Health Service with an appropriation of about \$280,000 per year.⁵

¹U.S. 58 Stat. 695. 1945.

²HR 3463, introduced by Voorhis, HR 3492, introduced by Kilday and HR 3968 introduced by Houston, were "to impose additional duties upon the U.S. Public Health Service in connection with the investigation, treatment, and control of tuberculosis." U.S. Cong'l Record 87:1147, 1204, 2187. 1941.

³U.S. Cong'l Record 90:3563. HR 4624. 1944.

⁴U.S. Code Title 42. Sec. 137-137g. 1940.

⁵Ibid., section 137f (b).

General. The National Health Bill proposed grants totalling \$100 million for the first three years and sufficient sums thereafter to aid states, extend and improve public health work, including services, supplies and facilities for the control of tuberculosis and malaria, pneumonia and cancer, provisions for mental health and industrial hygiene, and for training of personnel. Of the funds, \$15 million was to be appropriated the first year, \$25 million the second, and \$60 million the third. (Sec. 601).

Attitudes of farm groups with respect to federal grants to aid local public health services

Farm groups have expressed themselves as approving federal assistance for local public health services. For example, the following resolution was adopted by the Associated Women of the American Farm Bureau Federation, and confirmed by the Bureau, in 1939:

... the Associated Women of the Farm Bureau Federation hereby approves and urges the extension of all forms of preventive medicine throughout the country, particularly in rural areas, and ... the Associated Women further recommends a greater appropriation of funds under the Social Security Act for this purpose.¹

In 1944, the American Farm Bureau Federation stated:

We reaffirm our long-time position on the health problems of rural America.

¹ American Farm Bureau. Resolutions adopted at A.F.B.F. convention no. 24; approval of resolutions of Associated Women of A.F.B.F. The Nation's Agriculture 14, no. 1:10. 1939.

We recommend full cooperation with established units, with emphasis on clinics, dental, hospital, surgical and medical care, immunisation and other preventive measures.

We also lend our support to the Federal program for the control of venereal disease.

To meet the problem of maternal and child care, we favor the continuation of the present plan of administering such services.

To the extent Federal assistance is needed it should be limited to financial grants, without Federal control, to the states on the basis of need, with local and state governments responsible for performing this function.¹

The Farmers Union, as stated elsewhere in this thesis, favors government provision of all minimum medical and allied health services.²

Federal Action Relating to Construction of Hospitals and Health Centers

Pressure toward a new federal policy of aiding communities to obtain general hospitals and health centers has become apparent during the past decade. The first definite action was the building of hospitals under federal relief programs in the early thirties. Several bills introduced in the late thirties and early forties appear to reflect the trend toward such federal policy. There has been considerable interest expressed by various lay and professional groups in

¹American Farm Bureau Federation. Resolution of the Associated Women of the Farm Bureau Federation, adopted at the ninth annual convention, January, 1944 [Resolution no. 9 on health]. The Nation's Agriculture 19, no. 1:16. 1944.

²See p. 53.

federal aid of this nature. This section briefly explores these areas.

Hospital construction aid in thirties

As a part of the re-employment program during the depression, the Public Works Administration and the Works Progress Administration began in 1933 to help local communities to construct new hospitals and to expand and modernize old ones.¹

Public Works Administration. From 1933-1936 \$75 million was allotted to communities through P.W.A. for hospital expansion, about two-thirds of it consisting of grants and one-third of loans. Funds were used for construction of new hospitals, enlarging of old ones, and installation of equipment.²

Works Progress Administration. The W.P.A. aided in hospital expansion by supplying labor for construction. Local communities provided materials and land. For the most part work done in this area by W.P.A. consisted of improvement of existing hospitals rather than construction of new ones. From 1935 to 1938 W.P.A. improved over 1,400 hospitals, built additions to 38 and constructed 101 new ones.³

¹Bills introduced to authorize loans by the Reconstruction Finance Corporation for the construction of hospitals include the following:
 a. U.S. Cong'l Record 77:785 S785. 1933.
 b. U.S. Cong'l Record 79:1934, 2230. S2640, HR7804. 1935.
 c. U.S. Cong'l Record 79:5485, 9898. SJRes 101, HJ Res 333. 1935.
 d. U.S. Cong'l Record 79:46. HR150. 1935.

²U.S. Federal Emergency Administration of Public Works. P.W.A. provides modern hospitals. Washington, D.C. 1937.

³U.S. Works Progress Administration. Physical accomplishments on W.P.A. projects through June 30, 1938. Release no. 14, 329. Washington. 1938.

All of these projects were initiated by local governments; they were not federal construction programs. Their major purpose was to provide employment.

Hospital construction bills

National Health Bill, 1939. The need for hospitals and health centers was studied by the Interdepartmental Committee and the Technical Committee, described earlier, and presented before the National Health Conference in 1938. Growing out of this report, the first bill to provide funds for general hospital construction,¹ the National Health Bill, was introduced by Senator Wagner in 1939.²

The National Health Bill of 1939 would have authorized appropriation of a total of \$158 million to states, over a three-year period, to aid in the construction of general hospitals, with additional funds, amounts not stipulated, for mental and tuberculosis hospitals. No specific provisions were proposed for state surveys of hospital needs. The proposed funds for general hospitals included \$8 million the first year, \$50 million the second, and \$100 million the third. The administration was to be under the U.S. Public Health Service. (Title XII, Sec. 1201).

¹ An earlier bill (S 3631) had been introduced by Senator Pepper in 1938 to provide for assistance to states in the construction of hospital facilities for the medically needy. (U.S. Cong'l Record 83:3009, 1938).

² U.S. Cong'l Record. 84:1976-1981. S1620. 1939.

Wagner-George-Fulmer bills

The Wagner-George-Fulmer bill of 1940 (S3230, HR9154) was introduced after the National Health Bill failed to pass.¹ It was introduced partly to substitute for the latter and partly to provide an experimental program while congressional studies for a broader program went ahead. It was also a response to President Roosevelt's address to Congress in 1940, proposing federal aid to rural hospitals.² Its purpose was to assist local agencies, particularly in rural areas and economically depressed areas, to provide needed hospital facilities.

The bill proposed grants of \$10 million for the first year, for hospitals to be constructed by the federal government and leased to local communities. After a period of five years these hospitals were to be taken over by the communities if they were able to maintain the facilities according to the standards laid down. After the first year, grants for 25 to 90 per cent of the total cost of proposed projects were to be available to state and local agencies. The bill passed the Senate but it died in the House.³ It was re-introduced in 1941 (S1230, HR 584) but died in committee.⁴

¹
a. U.S. Cong'l Record 86:881-882. 7158-7162. S 3230. 1940.
b. U.S. Cong'l Record 86:3727 HR 9154. 1940.

²U.S. Cong'l Record 86:1040. House Document 604. 1940.

³Ibid., p. 7162.

⁴
a. U.S. Cong'l Record 87:2609. S 1230. 1941.
b. U.S. Cong'l Record 87:15. HR 584. 1941.

A bill (S3246) to supplement the Wagner-George-Fulmer bill was introduced by Senator Mead in 1940.¹ It proposed to authorize loans of \$300 million to public bodies and non-profit associations for the construction or improvement of hospitals, water and sewer systems, stream pollution control, and related projects and facilities. One-third of the funds was to have been used only for construction of hospitals.

A second bill for the same purpose (S3269-R9289) was introduced later in the session.² There was also a similar bill (HR8439) introduced by Habenner.³

Hospital construction under Lanham Act, 1940. The policy of granting of funds for the construction of general hospitals was introduced as a war measure with the enactment of the Lanham Act of 1941. In the "community facilities" title of this act, the government was empowered to provide and to assist in the provision of "any facilities necessary for carrying on community life substantially expanded by the National Defense Program, including hospitals and other places for the care of the sick, venereal disease treatment centers, sanitary facilities, and water supplies."⁴

The facilities might be public or private non-profit hospitals. They might be federally or locally owned or a combination of the two. Funds were available as outright grants, loans or both. There was the

¹ a. U.S. Cong'l Record 86:871. S3246. 1940.
b. U.S. Cong'l Record 86:1439. HR8439. 1940.

² U.S. Cong'l Record 86:1042, 1037. S3269, HR8289. 1940.

³ U.S. Cong'l Record 86:1439. HR8439. 1940.

⁴ U.S. Congress ... Hearings on S74., p. 1780-1781.

restriction that no federal agency might interfere with the administration of hospitals built or enlarged by these funds.

Although the Federal Works Agency was given jurisdiction over the administration of the Lanham Act, it turned over to the U.S. Public Health Service the investigations and recommendations for approval of application in advisory capacity. For this purpose a Hospital Facilities Section was established in the U.S. Public Health Service with a medical officer at the head.¹

From June 22, 1941 to April, 1944 \$428.5 million was appropriated under the Lanham Act.² Construction was largely for urban areas and nearby rural areas which needed additional facilities because of a sudden influx of population to work in war industries. Its purpose was not to aid hospital construction in rural areas in general.

Wagner-Murray-Dingell Bill of 1945. The 1943 Wagner-Murray-Dingell bill contained no provisions for hospital construction. However, the very first section of the 1945 bill proposed amending the Public Health Service Act to include a new Title VI called "Grants and Loans for Hospital and Health-Center Construction". This part of the act, if passed, is to be cited as the "Hospital and Health Center Construction Act".

The bill would appropriate \$5 million to be granted during the next 10 years to states for surveys of hospital and health needs, with the stipulation that in order to be eligible for the funds a state must:

¹Ibid., p. 1780.

²Ibid., p. 1780-1781.

(1) participate financially in the survey, (2) designate a single state agency to carry out the survey, (3) provide for a state advisory council consisting of representatives of groups concerned with the need for hospitals and with professional standards, and the operation, construction or use of hospitals; (4) meet the standards prescribed by the Surgeon General after consultation with the Federal Advisory Council, and (5) meet the approval of the Surgeon General. (Title VI, Part A, p. 2-5).

The bill proposed grants to states to aid in approved state hospital construction plans. If the bill were passed, \$5 million would be provided the first year and a "sum sufficient to carry out the purposes" during each of the following nine years. The same types of requirements were found for eligibility to these funds as are described in the above paragraph.

The hospital construction funds were to be available to any state or local government or any non-profit organization. These might receive grants alone or in combinations. Grants were to be no less than 25 per cent or more than 50 per cent of the cost of the hospital project. There might be a loan of 25 per cent of the cost of the hospital project and equipment. Funds might be used for construction, improvement, or enlargement of a hospital. Allotments to states were to be made on the basis of per capita income. (Title VI, p. 21-33).

Hill-Burton bill of 1945. The Hill-Burton Bill (S191) introduced in 1945 proposed the addition of a new Title VI to the Public Health Service Act, pertaining to the construction of hospitals. It was similar to Section 2 of the Wagner-Murray-Dingell bill in its purpose and in its appropriation of \$5 million to assist states in hospital surveys. (Sec. 611,

p. 2-5). No time limit was imposed, however. Its proposals for aid in construction of hospitals and health centers were much more ambitious than those of the Wagner-Murray-Dingell bill. A sum of \$100 million was proposed for the first year, with "sufficient sums" to be appropriated each year thereafter. (Sec. 621-624, p. 5-12).

Other bills and resolutions relating to federal aid for local hospitals.

In addition to the Wagner-Murray-Dingell and Hill-Burton bills there have been several other bills and resolutions to authorize investigation of hospital needs and to aid in the construction of hospitals. In 1942 there were two proposals for hospital surveys: HR 146, introduced by O'Connor¹ and HR 2567, introduced by Voorhis.² Both bills died in committee. There were before Congress in 1945 four additional bills, all providing amendments to the Public Health Service Act to authorize grants to states for surveying their hospitals and public health centers, and planning construction of additional hospitals and related facilities, and for assisting in such construction. These are: HR2498, introduced by Neeley,³ HR2755, by Patrick;⁴ HR 3561, by Priest;⁵ and HR 3845, by Snyder.⁶ These bills have not received the attention accorded the other two 1945 bills discussed above.

¹U.S. Cong'l Record 89:1525. HR 146. 1943.

²U.S. Cong'l Record 89:3788. HR2567. 1943.

³U.S. Cong'l Record 91:1860. HR2498. 1945.

⁴U.S. Cong'l Record 91:2743. HR2755. 1945.

⁵U.S. Cong'l Record 91:6738. HR3561. 1945.

⁶U.S. Cong'l Record 91:7869. HR3845. 1945.

Surplus medical equipment available from military services. Medical equipment is available for rural hospitals and health centers under the Surplus Property Act of 1944.

The ... property ... was procured through various... services of the War Department for the purpose of providing protection against the possibility of bombing, attack, sabotage and other war hazards. This property was distributed to States and communities on a loan basis. The danger of war hazards is past, consequently the property loaned to States and communities throughout the continental United States is no longer needed for the purpose for which it was procured and will be disposed of as surplus.

The Office of Civilian Defense Property was established within the Department of Commerce to ... (sell) ... to States, communities, tax-supported institutions, eleemosynary institutions, and non-profit institutions, and institutions which have been held to be exempt from taxation, and to volunteer fire companies ..."¹

Among types of hospital and medical equipment available to rural communities at low cost are the following: surgical instruments, bedding, beds, dishes, X-ray, incubators, diagnostic and sterilizing equipment, furniture, mobile medical and dental units, operating tables, oxygen tents, ambulances, water purification devices.

Communities are eligible to buy the equipment after proof of need has been set up. The State Department of Health assists communities in doing this. It assists also in determining the type and amount of equipment needed and it determines what organizations are able to qualify as purchasers under the Surplus Property Act.

¹U.S. Department of Commerce. Office of Civilian Defense Property. Civilian defense property: catalog no. 1. 1945, p. 1.

In August, 1945, a priority set-up of three classes of communities was being considered: (1) those with no facilities at present; (2) those with facilities inadequate to meet present needs; and (3) those needing replacements to maintain or to improve present services.¹

Attitudes of various groups concerning federal aid to hospital surveys and construction

There is general agreement among various groups with respect to federal aid in hospital construction for the above mentioned purposes but not general agreement in all aspects.

Professional groups. The American Hospital Association favors federal grants and loans to state and local agencies for the construction of needed general, tuberculosis, and mental hospitals and public health centers, together with facilities needed for each of them.² In 1943 and again in 1944 its House of Delegates passed resolutions favoring federal action, including aid in (1) conducting surveys of hospital needs, (2) construction, and (3) certain administration expenses. In fact, the Association has been actively supporting this Hill-Burton Bill. The American Medical Association also favors the bill. Various public health agencies, including the Iowa State Department of Health, are in accord with the proposal.

Dr. Ernest P. Boas, chairman of the Physicians' Forum, stated before

¹U.S. Dept. of Agriculture. Bureau of Agr. Economics. Surplus medical equipment for rural areas. The Agricultural Situation 29, no. 8:21. 1945.

²U.S. Congress, Senate. Hearings on S 74, p. 1809-1810.

the hearings on the Hill-Burton Bill,

The Physicians Forum ... is strongly in favor of the passage of this bill. It appears to be well drawn and we have no specific criticism of it to offer.¹

Farm groups. Some government efforts to improve hospital facilities for rural people have the support of the American Farm Bureau Federation. At the hearings on the Hill-Burton Bill, Mr. W.R. Ogg, a representative of the Farm Bureau, indicated approval of the provision of \$5 million for advance surveys of hospital facilities and needs among the states. He stated that it was "a wise approach in planning an intelligent, constructive, and effective program."²

The Farm Bureau also approves the principle of matching federal funds with local funds. It recommends that the bill should provide some special consideration for rural areas, similar to the formula used for allotting federal funds for maternal and child health programs. It recommends also that the bill make certain that hospital and related facilities are under local ownership and control and that the wording of the bill be modified to assure that before any grant is made for constructing or improving local hospital facilities, financial resources are available locally to maintain and operate the facilities. The Bureau states that federal funds should not be used for these expenses.³

¹Boas, Ernest P. Statement before hearings on Hill-Burton bill S191, Feb. 26, 1945. The Physicians Forum Bul. March, 1945. p.5.

²American Farm Bureau Federation. Senate group told rural health bill gets A.F.B.F. backing. American Farm Bureau Federation Official News Letter 24, no. 6:4. 1945.

³Ibid.

Labor groups. Labor groups also favor federal assistance in construction of hospital facilities. For example, Robert A. Lamb, Legislative Representative of the United Steel Workers, C.I.O. states:

Labor also favors the provision of additional physical plant, if the health needs of the country are to be met. Especially in rural areas, and in communities of heavily expanded population, new hospitals and health centers should be built, with federal assistance where needed.¹

Pharmaceutical trade groups. The American Druggist magazine states:

The approval of the drug trade with respect to federal hospital and maintenance programs somewhat similar to the present federal-state highway program, with federal grants administered under state or local control.²

Coordination of Government Action Relating to

Medical and Allied Health Services

Proposals have been made from time to time for more closely knit administration of government activities relating to health services. Some proposals are for coordination of activities under one government agency. Others are for informal coordination of activities of various independent agencies.

General proposals

As early as 1847 the American Medical Association urged the establishment of a U.S. Department of Health with its head a member of the cabinet.³

¹Lamb, Robert A. Legislative Representative, United Steel Workers, C.I.O. Washington, D.C. Information concerning stand at public meeting on Wagner-Murray-Dingell bill. Private communication [enclosure]. 1944.

²From the current stream. Med'l. Care 4:253. 1944.

³American Medical Association, Organization of medical services, p. 7.

As recently as 1939 the Association again suggested the creation of a Federal Health Agency headed by a Secretary in the President's Cabinet or a commission of competent physicians.¹ It has been proposed that such an agency be responsible for all federal medical, sanitary, and public health activities except those directly connected with military service.

Other suggestions have included a National Health Council for formulating policies and guiding administrative officers. Such a council should be representative of the medical profession, i.e., the producers of medical and allied services, including the major scientific fields from which the medical profession draws its powers, as well as consumers of the services, wage earners and employers, workers on housing, welfare, and education. Its function would be to define general objectives and standards to coordinate the interests of various public and private agencies concerned with health and also to maintain both standing and special committees dealing with specific subjects.²

Public opinion

In a Gallup Poll reported in 1945, the question was asked, "Do you think another cabinet office, called the Department of Welfare and headed

¹Wagner, Extension of remarks, p. A36.

²See Davis, Michael M. *America organizes medicine*. New York, Harper and Bros. 1941. p. 256.

by a Secretary, should be set up in Washington to include such things as Social Security, Public Health, and Education?" Nearly half of the people interviewed favored the plan. Nearly a quarter of them opposed the plan. The others expressed no opinion.

Apparently, proportionately fewer farmers favored the plan. Among this group slightly over a third favored the plan; slightly under a third opposed it, and the other third expressed no opinion. On the other hand, of professional and business people, over half favored the plan; less than a fourth opposed it, and the other one-fourth did not express opinions. Among manual workers, slightly under half favored the plan, about an eighth opposed it, whereas nearly two-fifths expressed no opinion.¹

Proposals of government agencies.

There have been attempts toward greater coordination. The Inter-departmental Committee to Coordinate Health and Welfare activities, described above, is one example. Another is the granting to the President, in 1939, of authority to place the Social Security Board, U.S. Public Health Service, and other federal agencies under the Federal Security Agency.

There was also an attempt by the National Resources Planning Board to aid programming in state and local governments for public works, including those relating to health. In 1939, Executive Order 8248 established the

¹Gallup, George. A welfare post in cabinet favored. Des Moines Register, Des Moines, Iowa. Sept. 19, 1945. Editorial page.

National Resources Planning Board as a clearing house and means of coordination and planning of activities, linking together various levels and fields of planning, federal, state, and local.¹

In order to help coordinate public works programs which might be needed by State and local governments after the war, the Federal Works Agency and National Resources Planning Board in 1941 suggested the establishment of a Public Works Reserve as a Works Projects Administration project. Its purpose was to have been the listing of needed construction and non-construction projects from state and local governments and assisting them in the preparation of long range programs of improvement based on community plans. It was hoped that the preliminaries could thus be completed for a broad program to be carried out after the war. These plans were to include construction in relation to public services such as health, welfare, and recreation. However, due to lack of funds the Public Works Reserve was discontinued. Its function assumed for a few months by the Local Public Programming Office of the Federal Works Agency and the National Relations Planning Board, but lack of funds soon made necessary the end of the program.²

The National Resources Planning Board stated in 1944 that federal legislation was needed for a more comprehensive policy of aid to local planning, similar to that of the short-lived Public Work Reserve.³ An

¹U.S. National Resources Planning Board. National Resources development report for 1943. Part 2: wartime planning for war and post-war. 78th Congress House document no. 128. Washington, D.C. 1944. p. 58.

²Ibid., p. 54, 55.

³Ibid., p. 55.

over-all program of Federal assistance was proposed in S1617.

Bills introduced.

A few bills have been introduced to transfer to the U.S. Public Health Service certain functions of other government agencies relating to the health of the civilian population. The Miller Bill (H.R. 4663) of 1944 proposed the transfer of health functions of the Secretary of Labor and the Children's Bureau to the U.S. Public Health Service. The Bulwinkle Bill (H.R. 7616) of 1944 related also to the organization and functions of the U.S. Public Health Service.

The Wagner Bill (S1620) of 1939 was considerably criticized by some as proposing too decentralized administration. Its administration was divided among the Social Security Board, the U.S. Public Health Service and the Children's Bureau.

The Public Health Service Act of 1943 placed the U.S. Public Health Service in the Federal Security Agency and reorganized the service to consist of: the office of the Surgeon-General, the National Institute of Health, and two bureaus, one the Bureau of Medical Services and the other the Bureau of State Services.¹

In addition to this there are about 20 other federal agencies having programs relating to some phase of health. In the Department of Agriculture, for example, the Bureau of Human Nutrition and Home Economics, Bureau of

¹U.S. Code. Title 42. Sec. 1a. 1943.

Dairy Industry, Farm Security Administration, and the Extension Service all have health programs. The Department of Labor also has programs relating to health.¹

Government Sponsored Prepayment Plans
for Medical and Allied Health Services

There has been some experimentation by government agencies in the area of prepayment plans for medical services similar to the consumer cooperative plans described in the first chapter of Part IV. Two such plans are discussed here. One of them is the Farm Security Administration medical care plan for its clients. The other is an experiment in health units open to all farm families in a county, such as the Newton County, Mississippi, Agricultural Health Association.²

Farm Security Administration health service plans³

The Farm Security Administration was set up in 1934 in the United States Department of Agriculture for the purpose of rehabilitating farmers on the borderline of relief. On the premise that good health and medical care are essential in economic rehabilitation, the F.S.A. has sponsored medical care plans for its borrowers and their families.

¹Miller, K.L. Extension of remarks on department of national health in cabinet. U.S. Cong'l Record 91:A129. 1945.

²U.S. Farm Security Administration, Farm Security Administration medical care program.

³The Farm Security Administration health programs for migratory workers are not included in this thesis.

Organization. In the F.S.A. plan, small medical service associations are formed, usually on the county base. About 90 per cent of the F.S.A. health units cover one county; nearly all of the others cover two counties. There are a few district organizations, e.g., the Pierre District Medical Association of Central South Dakota, which includes 14 counties. The four plans in Iowa during the thirties were county-wide.

About a third of the units are organized as non-profit health service associations, usually unincorporated, with articles of associations, by-laws, and a board of directors elected by members. Agreements with physicians are not contracts such as the agreements in the non-profit associations described in the preceding chapters.

The other two-thirds of the units are loosely organized. F.S.A. clients who wish to participate sign an agreement and select a trustee of the management of their funds.

Selection and payment of physicians. The usual plan for the F.S.A. sponsored health association is as follows. F.S.A. clients are loaned a sum varying from \$15 to \$30 per family per year. These sums are pooled and are under the charge of a local trustee. Arrangements are made with the local medical society by which each family may select the physician it wishes.

The medical society pays the physicians from the pooled fund, a committee of the society having reviewed the monthly bills. When the available monthly sum does not cover the total amount, the bills are pro-

rated. In the last six months of 1939 the records which were available indicated that 60 per cent of the bills were paid. In 1940, 86 per cent of the bills were paid.¹

This is as large a proportion as the physicians were likely to have received under the traditional pattern of payment. In several counties in Iowa the physician was paid at the rate of \$24 per year per family. The average payment for all farm families in the United States in such plans for the period 1935-36 was found to be about \$21.

Brown reports that in Iowa counties the percentages of payment of bills of F.S.A. plans in 1942 ranged from 60 to 100 per cent. In all cases they were higher than payments usually received from relief families.²

Benefits. The F.S.A. health service plans were organized for the purpose of furnishing emergency medical care. Emphasis was placed on the treatment of certain acute conditions.

In 1944 the benefits in various plans varied. Some included only services of general physicians. Others included in addition one or all of the following services: surgeons, hospital, drug, dental.³ Most of the associations did not provide hospital service; where such service was provided, it was limited. Usually provision of ordinary drugs was included as well as services of physicians.

¹Mott, Fred D., Chief Medical Officer, Farm Security Administration. Washington, D.C. Information on F.S.A. health program. Private communication. 1945.

²Brown, A.M., op. cit., p. 62.

³Mott, private correspondence, 1945.

"Emergency" is defined as "such medical care as is necessary in treating acute illnesses or acute recurrence of chronic conditions of such a nature as to cause actual suffering interfering with earning capacity, endangering life, or threatening some permanent new handicap as is preventable when medical care is sought." It includes, "obstetrical care, and where possible, the necessary number of prenatal visits, delivery at home, or hospital if necessary, and necessary post-natal care". Dental care and treatment, in general, is restricted to emergency extractions and emergency repairs.¹

Brown makes the following comparisons of F.S.A. group pool payment plans, as of June 1942, with the standard proposed at the National Health Conference in 1938, by Technical Committee on Medical Care. The four parts of the standard are given first, followed by Brown's comparison:

1. Medical and surgical care with necessary diagnostic services, medicine, and appliances.

93 per cent of the families holding membership in plans may receive ordinary medical care and diagnostic services insofar as the family physician is able to furnish them. Sixty per cent are entitled to surgery, usually for emergency cases or to remedy conditions of a seriously disabling nature. Plans characteristically lack provision for any other surgery; they lack provision for appliances. Many plans provide for ordinary medicines but not those necessary for long, expensive treatment, such as for malaria or diabetes. Only 40 per cent of the families are members of plans which make special provision for furnishing of drugs.

¹Goldmann, Medical care for farmers, p. 22.

2. Hospitalization, exclusive of maternity, mental, and tuberculous cases: care excluded to be supplied from tax-supported sources.

55 per cent of the families are entitled to hospitalization, in some instances for emergency cases only; in other cases, families may receive hospitalization up to a specified number of days per year; ward care, use of operating room, laboratory services are usually included; sometimes maternity cases are included.

3. Bedside nursing care.

Bedside nursing care is not included in plans in general farming areas. It exists on a volunteer basis under supervision of the community nurse in some project centers, which are communities made up entirely of F.S.A. borrowers.

4. Emergency dental care.

Dental care, where provided in connection with group pool payment plans, refers to limited emergency care. Forty-two per cent of families were entitled to such care.¹

Iowa plans have included emergency physicians' and surgeons' care and ordinary drugs supplied by physicians. They have not included dental benefits.²

Extent of F.S.A. program. In 1942 medical care plans sponsored by the Farm Security Administration served the needs of only one per cent of the total rural population and two per cent of the total farm population.³

¹Brown, Arline Martin. Medical service plans for Farm Security Administration families. p. 53-54. See also (a) National Health Conference, op. cit., p. 53. (b) U.S. Farm Security Administration. Annual report, office of chief medical office, 1941/42:7. 1942.

²Brown, A.M., op. cit., p. 50.

³Dorn, Rural health and public health programs, p. 32.

The Farm Security Administration policy is to decrease loans to plans of this type as soon as the families are financially able to carry on. With increased income there is less need for F.S.A. assistance. In June, 1940, there were 630 local medical service plans in 31 states, with approximately 420,000 individuals or 80,000 farm families. In June, 1944, the figures had dropped to 592 local units in 782 counties, enrolling 55,000 families or 41 per cent of the 380,000 eligible families.¹

Hospital service, either alone or together with surgical service, was offered in 1944 in 57 units in 319 counties, serving slightly over 100,000 individuals in slightly under 20,000 families.

Pohlman states that participation in the F.S.A. plans by eligible families was about 56 per cent at its average level. In some regions there was as high as 87 per cent participation by eligible families.²

In Iowa there were during the thirties five medical associations for F.S.A. clients, offering emergency medical services as defined above. They were in Union, Varion, Madison, Muscatine and Wayne counties. These plans have now terminated.³

Cooperation with other plans. The F.S.A. cooperates with prepayment plans already in operation. For example, several F.S.A. groups have

¹Mott, private correspondence, 1945.

²Pohlman, Kenneth E. *Lest we forget: the rural medically indigent.* Hospitals 18, no. 12:33. 1944.

³Brown, A.M., op. cit., p. 43, 62, 79, 80.

enrolled in Blue Cross plans. Blue Cross contracts are available to F.S.A. groups in North Carolina, New York, Oklahoma, and Oregon at lower rates than to other groups.¹ The California Physicians' Service has a Rural Service Department to serve F.S.A. clients.²

In Iowa, F.S.A. families in Woodbury County may obtain hospitalization insurance through the Blue Cross.³

Attitude of medical profession. The American Medical Association has approved, in general, the F.S.A. health service program. The following statement appeared in its Journal in 1940:

This pool plan is practical for physician and patient. The physician is available when protracted illness develops and when the family under ordinary circumstances cannot afford to pay. It also distributes individual cost of medical care over many families, so that cost of severe illness to one family can be more nearly equalized.⁴

It also stated:

Any plan to promote improvement in the collective family health among Farm Security Administration clients should redound to the general benefit. The aid given farm families which improves their economic condition and

¹ Pohlman, op. cit., p. 30-34.

² Davis, Michael M. Health insurance plans. Med'l care 4:20. 1944.

³ Borgman, op. cit.

⁴ American Medical Association. Proceedings of special session of the House of Delegates. J. Amer. Med'l Assoc. 114:2659. 1940.

enables them to liquidate their obligations later has a sound economic basis. If the aforementioned rehabilitation plan is developed, it should receive the approval of the component county medical society and should be accomplished through that society.

Your committee believes that the rehabilitation work done ... has been a valuable contribution to society, for the tendency is to restore self-respect to a family and to create a more independent outlook justifying the many loans, which in most instances are repaid.¹

In 1942 the American Medical Association made a special study, pending questionnaires to secretaries of State Medical Associations in states where F.S.A. medical plans were in operation. There was a vote of nearly four to one in favor of the plan.²

Appraisal of F.S.A. health service plans. The major contribution of F.S.A. health service plans, from the point of view of this thesis, is its demonstration that the prepayment of a fixed amount for medical care, on the insurance principle, is workable and is advantageous both to families and physicians. Even though the plans have been somewhat limited in scope and the groups have not been large enough to have a sound actuarial base and to stabilize demands for services, physicians have received more income from these families than they previously had received. In addition, more families received services.

¹American Medical Association. Committee on Legislative Activities. Report. J. Amer. Med'l. Assn. 116:2784. 1941.

²U.S. Farm Security Administration. F.S.A. medical care program. From annual report, 1942/43. Washington, The Administration. 1944.

The plans have indicated to some extent the advantages of cooperative group action between patients and physicians. The results are of value in demonstrating that it is possible to establish widespread medical care plans on the principle of cooperative action.

It is likely, however, that the F.S.A. health program has resulted in less awareness on the part of patients and physicians of the potentialities of prepayment plans than had been anticipated. It is likely that in many cases both patients and physicians considered the plan as a quasi-relief plan, closer to the former relief methods than to a newer type of non-profit health association plan. There are no studies to substantiate any definite conclusion in either direction.

Brown points out several inter-related problems which need further study and experimentation:

1. Setting satisfactory standards of care under such plans. More than emergency care is needed.
2. Discovering ways of reducing costs of providing this acceptable standard of medical care.
3. Obtaining sufficient funds to make acceptable standard of medical care available to all rural families.
4. Increasing sense of community responsibility of making this acceptable standard of medical care available for all.¹

R.C. Williams points out that:

The heart of the program lies in a clear understanding on the part of physicians and families as to what can be expected

¹ Brown, A.M., op. cit., p. 111-112.

under the program and its limitations. It is essentially a special program for an under-privileged group of farm people. The program could not be transferred to any other segment of the population without some change. A more solvent group of people would demand an extended and fuller program of medical care. But, for the group of people for whom the program is giving new opportunities and aid in efforts to get back on their feet, the plan is a boon.¹

In general, the experience of F.S.A. plans offer a basis for further experimentation in the direction of voluntary group action in the organization of medical and allied health services.

Experimental health service units established by U.S. Department of Agriculture

In 1942 the United States Department of Agriculture set up experimental units in six counties, based on plans developed by the U.S. Department of Agriculture's Interbureau Coordinating Committee on Post-war Programs. Plans were established in two counties in Texas and in one county each in Arkansas, Georgia, Mississippi, and Nebraska. They are supervised by the Farm Security Administration.²

Purpose. These health associations are experimental in nature. Their purpose is to discover processes and techniques for meeting current national health needs. The experiment is an effort to secure information

¹Williams, R.C. The medical care program for Farm Security Administration borrowers. Law and Cont. Prob. 6:593-594. 1939.

²Montgomery, James E. Newton County, Mississippi, Agricultural Health Association. Washington, D.C., U.S. Dept. of Agr. (B.A.E.) 1944. Mimeo. p. 1. The counties in which these experimental units are located include: Cass and Wheeler Counties, Texas; Hamilton County, Nebraska; Nevada County, Arkansas; Newton County, Mississippi; and Taos County, New Mexico.

which might be useful in developing a program to bring basic medical care within reach of all farm families.

Organization. These experimental units are similar to the F.S.A. plan described above except that they are not restricted in membership. All farm families are eligible regardless of income. The organization is on a county basis, with prepayment plans, and with the county agricultural planning committees assuming leadership.

Benefits include general physicians' services, and some services of specialists, dental care, drugs, hospitalization, and services of a visiting nurse.

The policy followed in these units is (1) that yearly payment by families be not a flat sum but six per cent of net cash income, up to a maximum which varies but usually does not exceed \$75; and (2) that payments by families be pooled into a common fund, the federal government contributing to this fund whatever amount is necessary to make a certain agreed average amount per family available to those providing services and materials. As of October 1942, from 32 to 68 per cent of the eligible families in these counties were participating. Membership in plans ranged from 463 to 2,379 families.¹

Appraisal. An analysis of the Newton County, Mississippi, Health

¹U.S. Dept. of Agriculture. Interbureau Committee on Post-war Programs. Information on activities. Washington. 1942, 1943.

Services, Inc., by Montgomery pointed up implications with reference to a national program of medical care. It was shown, for example, that the plan was actuarially unsound in that not enough families were included. Membership was on a voluntary basis. A relatively small percentage (41) of the total eligible population actually joined the association. Families who joined were largely those of lowest income. The implication is that if a health program is to be built on a sound financial basis it probably will be necessary to cover a larger group of people. According to Montgomery, it doubtless should cover the entire population of the nation, with federal, state funds for poor risk groups. He suggests also that a voluntary plan is not entirely satisfactory.¹

The analysis indicates that the county is too small an area for an administrative unit. It is thought that a unit of several counties would result in lower administrative cost and also result in better quality of service, because of exchange of ideas among the profession and greater opportunity for the services of specialists.

Another conclusion is that the medical and allied health profession needs to formulate standards and establish a system of regulations to assure services of a high quality.

In the small county units state and federal public health services were not fully utilized.

¹Montgomery, op. cit.

The chief contribution of these experimental units seems to be the trying out of the prepayment principle on a county-wide scale. If a national health insurance plan is adopted, such a background of experience will be of some value.

Social Insurance for Health

Earlier discussion in this thesis has referred to social insurance for health. Thus far the United States has no program for social insurance for health. Various proposals have been made for such insurance, compulsory or voluntary.

In this section are presented certain aspects of: (1) principle of social insurance for health, (2) social insurance for health among states, (3) federal bills relating to social insurance for health, (4) attitudes of various lay and professional groups concerning social insurance. In a broad sense the government action discussed above is social insurance for health, since it provides services which affect the health status of the total population. In a narrower sense, and as defined in the preceding chapter, social insurance for health includes direct medical and allied health services for individuals, the risk provision of the services being shifted from the individual to a society group, in this case the nation.

Principle of social insurance for health

Since total incidence of sickness is relatively predictable and is an insurable risk comparable to fire and death and since voluntary health insurance has so far been inadequate, there has been some pressure for social insurance, whereby a large enough group is covered so that reasonable rates are assured. Rates are reduced by spreading the risks and by the elimination of duplication and expensive overhead. It is thought that the rates can thus be lowered to make insurance accessible to lower income groups.

Hohaus states that, while there is still much disagreement on various aspects of social insurance, there is increasing acceptance of the following principles:

1. The purpose of social insurance should be to provide, through a government-operated or sponsored plan, protection against one or more major hazards of life which are sufficiently widespread throughout the population and far-reaching in effect to produce large dependency problems for society, and so become "social" in scope and complexion.
2. The protection should be afforded on a dignified basis making for self-respect -- usually as a legal right.
3. Being designed to serve primarily society as a whole, little or no latitude should be permitted the individual insured regarding the kind and amount of the protection he may have, or the price to be paid for it.
4. The measure of protection should be "social adequacy" for the insured and their families -- that is, it should

represent, as far as practicable, a basic layer of protection. "Social adequacy" usually makes it impractical to have "individual equity" for the insured in the sense of a mathematical quid pro quo return on account of the contributions made by or on behalf of the individual.

5. ...membership in the plan should be compulsory to minimize self-selection, abuses and anomalies. Compulsion is also desirable in order to obtain the widest practicable coverage of the population.¹

Social health insurance among states

Health insurance provided by state governments thus includes only accident insurance and workmen's compensation, although proposals have been made during the past 25 years for state health insurance with wider coverage.

During the second decade of this century there was quite a movement in the United States toward social health insurance with wider benefits. Industrial rather than agricultural workers were emphasized, however.

Between 1915 and 1920 there were 11 official state commissions appointed to study the problem. Of these six favored compulsory health insurance and five reported against it.²

The American Association for Labor Legislation was active in arousing public opinion in favor of action. In cooperation with a committee of the American Medical Association a "Standard Bill" was drafted in the fall

¹Hohaus, Reinhard A. Social insurance in a democracy. (Address at 37th annual meeting of American Life Convention, Chicago). New York, Metropolitan Life Insurance Co. 1942. p. 4.

²Epstein, op. cit., p. 448.

of 1915, providing for compulsory health insurance for all manual workers and other employees except governmental employees, home workers and casual employees, with benefits provided for all sickness, accidents, and death not covered by workmen's compensation. The insurance was also available to self-employed persons not earning over \$100 per month. The bill was introduced into three state legislatures in 1916 and into 12 in 1917. It was not passed by any legislatures. There were two national conferences called by the investigating commissions, in 1917 and 1918.¹

During the twenties, when times were more prosperous, interest in social health insurance lagged. Nothing concrete was accomplished. No governmental agency, local, state or federal, provided any type of health insurance.

The thirties brought renewed interest in the question of social health insurance. The depression helped to bring forth the issue. Also, the report of the Committee on the Cost of Medical Care appeared early in the decade.

A model state health insurance bill was prepared in 1935, revised in 1940, by the American Association for Social Security. Such a bill would establish a state system of health insurance providing for general medical care, hospitalization and other services. Agricultural workers were not included in the bill.

¹Ibid., p. 453. See also Beck and Jessup, op. cit., p. 25.

Bills patterned after this model appeared in several states. In the three-year period from 1939 through 1941, 27 bills providing state compulsory health insurance were introduced in 22 state legislatures. None of them passed. One such bill for the establishing of a cash indemnity compensation for temporary disability, passed both houses in New York in 1940 but was vetoed by the governor.¹

Other bills concerning health insurance plans were introduced in state legislatures. Altogether there were 166 bills of this type. Of the bills, 27 were for compulsory health insurance. There were 33 bills for medical service plans, 56 for group hospital plans, 20 concerning medical cooperatives, and 30 on medical care for indigents.²

Bassford states that:

Legislative attention in the states has been directed in the main toward encouraging local voluntary effort rather than compulsory state action. During 1939, about 285 bills in the health field were introduced in 44 of the state legislatures. These dealt, for the most part, with provision of private voluntary medical services or cash benefits for disability, or with regulation of public or private agencies engaged in the promotion of health activities. Only 19 of them would have provided compulsory state health insurance. Among the 110 bills passed, none dealt with such insurance. A Social Security Board review of 1939 developments in the health security field states the following:

On the whole ... state legislative proposals for medical services continued to place emphasis on care of indigents and plans for voluntary health insurance rather than on more comprehensive tax-supported health programs for all or nearly all the people.³

¹Beck and Jessop, op. cit., p. 36-37.

²Ibid., p. 37.

³Bassford, Horace R. Health insurance. Encyclopedia Americana. 14:34. 1942.

Federal bills relating to social health insurance

Interest in federal action concerning social health insurance has developed mainly since the thirties. No federal bill providing for such a system had been introduced before 1938, although there had been in 1935 a House resolution authorizing the creation of a commission for the purpose of drafting a bill for a national insurance fund against sickness, invalidity, and unemployment.¹ The resolution was referred to a committee, public hearings were held, and there the matter ended.² There were introduced in 1935, however, two bills providing health insurance for workers, with cash indemnity for wage loss during illness.³

Proposals for federal action for health insurance have been along two general lines: (1) grants to aid state health insurance programs and (2) national health insurance. These are examined briefly in this section.

Grants to aid state health insurance plans. Most of the proposals for social insurance have been for state rather than federal systems. Several bills have been introduced into Congress proposing federal grants to aid state health insurance systems, in particular those providing disability compensation.

¹U.S. Cong'l. Record 79:142. (H5549). 1935.

²Beck and Jessop, op. cit., p. 25.

³U.S. Cong'l. Record 79:1772, 11,127; S3253, H5549. 1935.

Along with the model state health insurance bill set up in 1935 and revised in 1940, the American Association for Social Security prepared a companion bill for a national health act providing grants to aid such state systems. This model bill covered industrial groups; farm workers, and domestic workers were excluded. Several of the federal bills have been patterned after the model bill of the American Association for Social Security.

Several bills have been introduced by Senator Capper. One bill (S658) was introduced in 1939.¹ It would have provided federal aid to states for establishing health insurance adapted primarily to wage earners from whom regular payroll deductions would have been made. The provision would not have benefitted agricultural areas. Another bill (S3660), introduced by Senator Capper in 1940,² proposed grants to states establishing health insurance for lower income groups. It did not pass and was re-introduced in 1941 as S489.³

Proposals for federal disability insurance. Most of the bills relating to social insurance which have been introduced in Congress propose cash indemnity for wage loss due to illness or disability. They cover low income industrial workers. Two such bills were introduced in 1935, by Senator Capper (S3253) and Representative Dunn (HR 5549), as mentioned

¹U.S. Cong'l Record 85:355. S658. 1939.

²U.S. Cong'l Record 86:3314. S3660. 1940.

³U.S. Cong'l Record 87:256. S489. 1941.

above. Mr. Treadway introduced HR 9847 in 1938.¹ In 1939 bills introduced by Senator Lodge (S2963)² and Representative May (H Res 316)³ were of this type.

Senator Lodge introduced S3630⁴ in 1940 for the same purpose. These bills proposed aid in establishment and administration of state health insurance plans for low income workers. The bills were in the form of an amendment to the Social Security Act. They would have extended to a certain portion of temporarily unemployed persons and their dependents who are now covered by the federal old age and survivors insurance system, further benefits in the form of medical, dental and hospital service up to a maximum of \$40 annually per covered worker. Neither bill was passed.

The Wagner Bill, or National Health Bill, of 1939 included one clause relating to insurance against wage loss in case of disability. It included provisions for a sum of \$10 million to be appropriated the first year, and "sufficient sums" thereafter for aid to states in paying temporary disability compensation. The federal payment could be no more than one-third of the total sum spent by the state during each period. (Title XIII, Sec. 1401 and 1403.)

¹U.S. Cong'l Record 83:3358. 1938.

²U.S. Cong'l Record 84:10,985. 1939.

³U.S. Cong'l Record 84:6737. 1939.

⁴U.S. Cong'l Record 86:3 1940.

The Wagner-Murray-Dingell bills have included temporary disability and maternity insurance benefits also with federal unemployment insurance (under Title VIII, sec. 801 and 802, p. 29, 32, in the 1943 bill and under Title II, B, sec. 220, p. 106-109, of the 1945 bill).

National health insurance: Wagner-Murray-Dingell bills

The first proposal for social insurance on a national scale, providing health services rather than, or in addition to, cash indemnity for wage loss, was the Wagner-Murray-Dingell Bill, introduced in 1943 (S1161, HR2861). This bill did not pass. Another (S1050, HR3293) was introduced in 1945.

Benefits. Both of the Wagner-Murray-Dingell bills have proposed federal medical, hospitalization, and related benefits as part of a National Social Insurance System.¹ These are as follows:

Medical and related services. Under the 1943 Wagner-Murray-Dingell Bill, insured persons and their legal dependents were entitled (1) to the services of a general physician in office, home, or hospital, (2) to services of specialists, and (3) to necessary laboratory services, including chemical, bacteriological, pathological, diagnostic and therapeutic X-ray, and related laboratory services, physiotherapy, special appliances pre-

¹Under Sec. 11 of S.1161, which would amend Title IX, Sec. 901-915 of the Social Security Act; and under Sec. 9 of S1050, which would amend Title II, Sec. 201-296.

scribed by a physician, and eye-glasses prescribed by a physician or other legally qualified practitioner. (Sec. 915 a, b, c, p. 55-56).

The 1945 bill provided, in addition, for dental services, including at least (1) examination (including X-ray and diagnosis), (2) prophylaxis, (3) extraction of teeth considered by the dentist and an attending physician to be or likely to be injurious to the general health of the individual, and (4) treatment of acute dental diseases. (Sec. 210, b, p. 93, 1945 bill).

Home nursing benefits also were added in the 1945 bill, including care furnished in the home by either a registered professional nurse or a practical nurse who is legally qualified.

Both bills provided that the Surgeon General and Social Security Board jointly study and make recommendations as to the most effective methods of providing dental, nursing, and other needed benefits not already provided in the bill, with estimates of cost. These were to be reported and legislation recommended on these subjects not later than two years after the bill went into effect. (Sec. 912, p. 53, of 1943 bill; Sec. 211, p. 94-95, of 1945 bill).

The 1945 bill also provided for similar studying and making recommendations as to needed services and facilities for care of the chronic sick with physical ailments or mental or nervous diseases. Recommendations for legislation were to be made not later than three years after the effective date of the act. (Sec. 211, b, p. 95 of 1945 bill).

Hospital services. The 1943 bill included up to a 30 day maximum of hospitalization services for each insured person and dependent, unless funds should permit extension to a longer term, not over 90 days. Benefits included from \$3 to \$6 per day in general hospitals for 30 days, or \$1.50 to \$3 per day in institutions for the chronic sick (Sec. 902, p. 40). The services might be in any public or private institution meeting the general standards prescribed by the Surgeon General after consultation with the Advisory Medical and Hospital Council (Sec. 907, p. 49; Sec. 916, f, g, p. 56-58).

The 1945 bill extended the number of days of hospitalization to 60, or to 120 if funds would permit (Sec. 210, c, p. 103). It increased payments for the first 30 days of hospitalization to not more than \$7 for each day and added payments of not less than \$1.50 or more than \$4.50 per day each day beyond the 30. The payment for hospitalization of the chronic sick remained the same in the 1943 bill (Sec. 210, c, p. 103).

Limitations of benefits. No one was entitled to any benefit with respect to an injury, disease, or disability because of which services were provided under a workmen's compensation law (Sec. 909, p. 50 of 1943 bill; Sec. 208, p. 89-90 of 1945 bill).

Both bills provided that the Surgeon General might, after consultation with the Advisory Council, require beneficiaries to pay a fee with respect to the first service or to each service in a spell of sickness if there is evidence that this should be necessary to prevent abuse

of such benefit (Sec. 911, p. 51-53, of 1943 bill; Sec. 210, p. 91-92, of 1945 bill).

Administration. Both of the Wagner-Murray-Dingell bills proposed placing authority concerning the health and medical provisions in the Federal Security Administrator. Professional and administrative functions were to be vested in the Surgeon General of the U.S. Public Health Service. Ultimate responsibility for financial matters was to be entrusted to the Social Security Board. (Sec. 914, p. 55, of 1943 bill; Sec. 203 and 204, p. 72-80, of 1945 bill).

Both bills provided for a National Advisory Medical Policy Council, consisting of the Surgeon General and 16 members to be selected by him. Selections were to be made from panels submitted by professional and other agencies and organizations concerned with medical services and education and with the operation of hospitals, and from other persons informed on the need for such health services. The function of the Council would be to advise the Surgeon General concerning professional standards of quality, the designation of specialists, means to improve standards of professional service, the designation of standards for hospitals, and suitable and adequate methods of payment. It also would conduct studies and surveys of medical services and designate grants for education and research. It would be authorized to establish subsidiary advisory boards, committees, or commissions to deal with special technical, local, or regional problems. (Sec. 904, p. 41-43, of 1943 bill; Sec. 204, p. 77-80, of 1945 bill).

Method of payment to physicians. Payments to a physician under either of the Wagner-Murray-Dingell bills might be on any of the following bases: (1) fees-for-services rendered to individuals according to a fee schedule approved by the Surgeon-General; (2) per capita fees, according to the number of individuals on the physicians' list; (3) salary, either whole time or part time; or (4) any combination or modification of these, according to the way the majority of physicians in an area choose, subject to necessary rules and regulations as may be prescribed by the Surgeon General.

Payments for particular services or classes of services might be nationally uniform or adapted to take account of relevant factors in an area. (Sec. 905, p. 44-48, of 1943 bill; Sec. 205, p. 80-86, of 1945 bill).

Eligibility for services. The two Wagner-Murray-Dingell bills have proposed extension of protection to self-employed persons, farm laborers, domestic servants, employees of non-profit institutions and organizations except ministers of the church or regular members of religious orders. Federal employees still were excluded, except that workers employed by the Tennessee Valley Authority on an hourly basis were included under the bills. Employees of states or political subdivisions were to be included if special voluntary compacts are made by the agencies employing them. (Title II, p. 7-16, of 1943 bill; Sec. 275, p. 150-162, of 1945 bill).

In addition, both bills provided grants to states for care of the needy. (Title XII, p. 82-90 of 1943 bill; Title XIII, p. 56-71, of 1945 bill).

Financial provisions for proposed services. Here are described briefly proposed total payments to Social Security under the Wagner-Murray-Dingell bills, amount of payments for health insurance, and provisions for administration of the latter.

Total payments to Social Security as proposed by the two Wagner-Murray-Dingell bills were as follows: (Title IX, A and B, p. 59-64, of 1943 bill; Part G, p. 164, of 1945 bill).

1. Under the 1943 bill, 12 per cent of wages under \$3,000 would be paid each year, six per cent being paid by employers and six per cent being deducted from payrolls of employees. The 1945 bill reduced the amount to eight per cent, with four per cent paid by employers and four per cent by employees.
2. Self-employed persons, under the 1943 bill, were to pay seven per cent of the market value of their services as self-employed individuals, up to the same limit of \$3,000. Under the 1945 bill this was reduced to five per cent of this market value, up to \$3600 per year.
3. For employees of state and local governments which entered voluntarily into compacts with the Social Security Board, payments, under the 1943 bill, were to be six per cent of wages, of which one-half was to be paid by the State or local government and one-half obtained by payroll deductions. Under the 1945 bill the amount was five per cent.

To finance the medical care and hospitalization program of the 1943 Wagner-Murray-Dingell bill, a separate medical care and Hospitalization Account was to be established. To this account would be credited:

- (1) one-fourth of contributions paid by the employers and employees,
- (2) three-sevenths of the contributions made by the self-employed and by or on behalf of employees of state and local governments, and (3) any sums accruing from agreements with states for the care of needy sick under the medical and hospital provisions of the bill. Cash benefits for disability were to be treated separately under the provisions for unemployment insurance (Sec. 913, p. 53-54, of 1943 bill).

Under the 1945 bill a Personal Health Services Account created under the Social Security Trust Fund, was to be credited with three per cent of the funds to the Trust Fund and certain other funds (Sec. 212, p. 95-96, of 1945 bill).

The Social Security funds were to be divided so that three per cent of wages would go to medical care and hospitalization insurance; two per cent to retirement, survivors, and extended disability insurance; two per cent to unemployment insurance; and one per cent to temporary disability insurance.

Suggested methods of payment by farm people. Farm people have been excluded from the social security program largely because of the difficulty or administering the program for them. Mr. A.J. Altmeyer, chairman of the Social Security Board, has stated the problem and suggestions for its solution

as follows:

The most important problems involved in extending social security to farm people are those of obtaining reports of their earnings and collecting their contributions without undue cost or inconvenience. For farm operators, both these problems could be solved by making use, so far as possible, of other reports that they are already sending to the Government, such as their income tax returns. With very little change, the same returns could be made to serve also as earnings reports for social security purposes, and the social security contributions could be sent in with the income tax payments. Farm operators who do not pay income taxes could avoid any need for keeping special records by estimating the market value of their services to their farm businesses, and paying their social security contributions on that basis. The wages they paid to their best workers, or if they had no regular workers, the prevailing rate for good workers in their locality, would furnish a guide in making this estimate.

The problems of collecting contributions and obtaining wage records for farm workers are simplified by the fact that more than half of all farms employ no paid help at all. About 30 per cent of the workers are employed on only 8 per cent of the farms -- those hiring more than 4 workers. The largest farms -- those employing 10 or more -- hire nearly 15 per cent of the workers but comprise only 2 per cent of the farms hiring labor. In 1939, farms with products valued at \$2,500 to \$10,000 annually -- 21 per cent of the farms hiring labor -- paid about 36 per cent of the wage bill. In the same year, only 2.4 per cent of farms hiring labor had products valued at \$10,000 or more, but these farms paid more than 30 per cent of the farm wage bill.

For farm workers, several methods of collecting wage reports and contributions could be used. For regular workers on large farms, where pay-roll records are already kept, the system of payroll reporting now used in industry might be most convenient. For the rest -- that is, for the workers on small farms and the temporary help employed during rush seasons -- it might be more convenient to use a stamp plan. Whenever he paid his hands, the farmer could place special social insurance stamps in books carried by the workers. Half the cost of these stamps would be borne by the employee.

The books would be accepted by the Social Security Board as evidence of earnings, and the farmer would not need to make any report or keep any special record for the purpose.¹

Another problem is the accounting for wages "in kind", e.g., room and board, in the farm worker's total wage. The suggestion for helping farmers and workers to set a value of these items has been made by the Social Security Board that a scale of cash equivalents for such items be published from time to time, based on data collected by the U.S. Department of Agriculture. A second suggestion is that such items as room and board might be valued at specific percentages of cash wages, with upper and lower limits. For example, room and board for a single worker might be valued at 40 per cent of his cash wage, provided it was not thereby valued at more than \$50, say, or less than \$15 per month.²

Attitudes of various groups with respect to social insurance for health

Medical profession. There is considerable difference of opinion within the medical profession with respect to social insurance for health. Such insurance is not approved by the profession in general. However, several groups of physicians have endorsed the principles of the Wagner-Murray-Dingell bills. The Physicians' Forum and the Committee of Physicians for the Improvement of Medical Practice are both active in promoting such legislation. On the other hand, the National Physicians'

¹Altmeyer, A.J. Social security for farm people. Economic Security Bul. 7, no. 4:2, 1944.

²U.S. Social Security Board. Fact sheet on social security for farm hands. Washington, D.C. March, 1944. p. 4. Mimeo.

Committee for the Extension of Medical Service, which is reputed to be acting for the American Medical Association, and to be financed by funds from certain pharmaceutical firms and insurance companies, is actively opposed to national health insurance. A second organization, the American Association of Physicians and Surgeons, actively opposes the bill: the statement has been made that the purpose of the Association is "to block the regimentation of American Medicine such as proposed by the Wagner-Murray-Dingell Bill."¹ It is likely that the majority of physicians, as represented by membership in these groups, oppose social insurance for health. It is, however, difficult to judge how representative of the profession these groups are.

The Committee of Physicians for the Improvement of Medical Care is on record as approving a national health program with legislation to make shelter, medical care available to individuals of average income and to the indigent. It did not approve of the Wagner-Murray-Dingell Bill of 1943 as it stood. It issued a statement recommending specific changes in the Bill, for the most part directed toward efficiency in its administration and services.²

¹Physicians Forum. Boycott and strike. The Physicians Forum Bul. August 1944. p. 1.

²Committee of Physicians for the Improvement of Medical Care, Inc. A summary and critical analysis of the medical features of the Wagner-Murray-Dingell bill (S1161, HR2861). Statement no. 12, New Haven, Conn., The Committee. 1943.

The Physicians' Forum for the Study of Medical Care states:

The general public demands more and better health services, but, on the whole, is unable to purchase them on an individual basis. A well planned program of medical care would benefit the public and contribute to the economic stability of physicians. An approach to a solution of these problems exists in a Bill for a National Unified Social Insurance System which is known as the Wagner-Murray-Dingell Bill. S1161 and HR2861.¹

The Committee on the Costs of Medical Care states:

Families with low or irregular incomes, even if they are self-supporting ..., cannot usually be covered by any form of voluntary insurance. The experience with voluntary insurance in other countries has generally led to the conclusion that persons employed in small businesses or self-employed are also unlikely to enter a voluntary plan, unless they see a saving to them personally or a likelihood of better coverage. For these reasons, voluntary health insurance has been succeeded by compulsory insurance in most of the countries of western Europe.

The Committee recognizes that the distribution of the costs of medical care will not become widespread in some communities, or for certain sections of the population in many communities, unless there is legislation which makes the distribution of these costs compulsory.²

Typical of the point of view of the National Physicians' Committee for the Extension of Medical Science and indirectly of the American Medical Association, is the following:

It is obvious that, if these proposals [of the Wagner-Murray-Dingell bill of 1943] become the law of the land, they will destroy the entire system of medical care as we

¹Physicians Forum. S1161, the Wagner-Murray-Dingell bill and your health. New York, The Forum. 1943. p. 1.

²Committee on the Costs of Medical Care, Medical care for the American people, p. 127.

have known it in the United States ... It is understood that, if the Medical Profession is regimented, it will represent a decisive step toward establishing centralized Federal Control of all of the professions and industry, and the destruction of Freedom of Enterprise in the United States.¹

Dr. Bierring, Iowa State Health Commissioner, stated concerning the Wagner-Murray-Dingell bill, in the Journal of the Iowa State Medical Society in 1944:

...At best it is an experiment with no successful precedent anywhere in a democracy such as ours. Every thoughtful physician sees in it a definite sacrifice of present standards of medical care.

...It will require a most vigorous offense to combat this threatened legislation, because aside from the specific medical features, it not only introduces socialization on a vast scale but also contemplates an entirely federal administration with complete disregard of state boundaries and sovereignty.

Furthermore, such a system will inevitably be burdened with the by-products of red tape and mediocrity inherent in most civil services and some politics.²

Insurance companies. Among commercial accident and health insurance companies there is some opposition to social insurance for health. Life insurance companies which offer accident and health insurance policies are more favorable to the plan, considering it a wise method for basic provision of health services, supplemented by commercial policies.

¹The National Physicians Committee for the Extension of Medical Service. \$3,048,000,000 of political medicine yearly in the United States. Chicago. The Committee. [1943] p. 4, 7.

²Bierring, Walter L. Federalization of the practice of medicine. J. Iowa Med. Soc. 34:38. 1944.

The statement made in 1939 by Reinhard A. Hohaus, Associate Actuary of the Metropolitan Life Insurance Company and President of the American Institute of Actuaries, with reference to social insurance in general, applies as well to social insurance for health:

Since each rests on different principles, there is no need to consider private insurance and social insurance as competitors. Rather, one complements the other in providing old age security for the various classes in the population. Neither, by itself, can do the job for the country as a whole. As stated by the Social Security Board:

It is impossible under any social insurance system to provide ideal security for every individual. The practical objectives to pay benefits that provide a minimum degree of social security - as a basis upon which the worker, through his own efforts, will have a better chance to provide adequately for his individual security.¹

The American Farm Bureau Federation has stated:

We favor an intensive attack on the problems of better medical care for all groups, particularly in rural areas. In general, we favor action on this problem by the voluntary organization of cooperative health and hospital associations, which have already proved their worth. We stand ready to cooperate with members of the medical profession and other groups in the solution of this problem. We are opposed to legislation designed to provide compulsory medical care and hospitalization. We recommend full cooperation with our established health units and existing health programs, including immunization, clinics, preventive medicine, nutrition courses, and home nursing.²

¹Hohaus, The Federal old-age and Survivor's Insurance plan, p. 4.

²American Farm Bureau Federation, Resolutions ... 1944, op. cit.

Farm groups. The fact that there is some difference of opinion among farm groups concerning social insurance for health is indicated by statements of the Farm Bureau and the Farmers Union.

The Farm Bureau stand opposing such legislation is expressed by the following statement:

The Associated Women, since its inception, has promoted Group Health Associations and Hospital insurance as a means of securing more adequate care at more equitable cost to low and middle income groups.

We are unalterably opposed to any legislation designed to provide hospital care through public compulsion. Voluntary associations for hospital insurance have proved highly satisfactory in several of our member states and should be encouraged and further developed.

We urge the continuance of efforts to secure medical care of highest standard, furnished by physicians of our own selection, paid from our own earning but arranged on a prepayment plan. The Clinic or Group Health Association can double the efficiency of doctors and nurses, ...

We therefore recommend that every encouragement be given to the formation of group health clinics and associations.

We further recommend that should interference with such groups develop, protection under state laws be demanded or new legislation enacted in those states where present laws are inadequate.¹

On the other hand, approval by Farmers Union is expressed as follows:

Our stand on agriculture, including health aspects, was presented to the National Republican Party and later presented to the Democratic Platform committee. We believe

¹American Farm Bureau Federation. Resolutions of the Associated Women of the American Farm Bureau Federation, adopted at the eighth annual convention [Resolution No. 6 on health] . Nation's Agriculture 18, No. 1:16. 1943.

it right to get tax-supported and rural health programs of agriculture because so much of the wealth of agriculture has been drained off from agriculture and into the eastern financial centers of this country. We believe that since public and rural health should be a responsibility of all of the people doctors should be on a salary because we think they should be public servants instead of having to be forced into the position of bill collectors so much of the time.

We think if teachers who bring an education to our young people can be put on salary and can be public servants and do a very real job, doctors might well be put in the same category. Still I hope that doctors will never be put into quite the position as to salary that our teachers have been placed in. I should not like to see that happen.

We believe that there must be a planned program for rural health as well as for all public health programs, hospitalization, curative and preventive medicine, and we think the people should have the right to participate in the planning of that program with the technical people so that we may have high standards and also be able to bring medicine under those high standards to people where it is needed.¹

Labor groups. The endorsement of social insurance by labor groups is indicated by the statements which follow.

Philip Murray, President of the Congress of Industrial Organizations, has made the following statement concerning the Wagner-Murray-Dingell Bill of 1945: "The CIO welcomes the ... bill ... and urges its members to lend every support to early hearings before the appropriate congressional committees."²

¹Edwards, Gladys Talbott, Statement made at conference, Chicago, Ill. In Farm Foundation, op. cit., p. 221.

²Murray, Phillip. Statement endorsing S1050. U.S. Cong'l. Record 91:A2819. 1945.

William Green, President of the American Federation of Labor states:
 "The American Federation of Labor whole-heartedly endorses and supports
 the new ... bill."¹

Robert A. Lamb, Legislative Representative of the United Steel
 Workers, CIO, states:

It is, I believe, the demand of organized labor that any
 actual carrying out of the provisions of the act be on a
 decentralized basis. The United Automobile Workers, the
 National Maritime Union, the Amalgamated Clothing Workers,
 and other CIO unions have been exploring the problems of
 medical care on behalf of their members. They have already
 had considerable experience, especially among the auto
 workers in Michigan, upon which to base their views as to
 the need for a national health insurance program.

They contend that local representatives, laymen as well as
 members of the medical profession, should form the public
 bodies to supervise local administration of any national
 program. They see a broad local representation as the best
 guarantee that this program will not become rigidly central-
 ized in Washington or at the State Capitols, and also that
 it will not become the pawn of medical politicians.²

Public opinion.³ Several public opinion polls have indicated
 public interest in some plan for prepayment of health services. A Gallup
 Poll in 1938 indicated approval of prepayment by 53 per cent of those
 interviewed. A later poll in 1944 indicated that around 80 per cent

¹Green, William. Statement endorsing S1050. U.S. Cong'l Record
 91:A2819. 1945.

²Lamb, Robert A. Legislative Representative, United Steel Workers,
 CIO. Washington, D.C. Information concerning stand at public meeting
 on Wagner-Murray-Dingell bill. Private communication. Enclosure . 1944.

³See: a. Beck and Jessop, op. cit., p. 23.
 b. California public opinion on medical care. Med'l Care 4:245-
 846. 1944.
 c. Porter, Amy. Do we want national health insurance? Colliers
 117, no. 4:20-23, 99, 1945.
 d. Reuss, Carl F. Farmer views on the medical situation. Wash.
Agr. Exp. Sta. V. Circular No. 20. 1944.

wanted some easier way of paying medical and related bills and that 59 per cent favored extension of the Social Security Act to cover medical care. Two polls by the National Opinion Research, Inc. showed contradictory results: one showed 68 per cent in favor of such extension of Social Security Benefits, while the other showed 63 per cent opposed.

The Foote, Cone, and Belding poll conducted for the California Medical Association indicated that half of those interviewed favored some type of socialized government-controlled medical plan. A third of those interviewed favored voluntary prepayment plans. About a quarter favored a plan supported by tax funds and providing services of physicians employed by the government. A third favored the present system of private practice.

A study by the Washington Agricultural Experiment Station in 1944 indicated that, among farmers in Washington, a quarter approved socialized medicine, defined as provision of medical services available to people free of charge and paid for out of tax funds, just as public schools are available to all children. Half of the farmers interviewed opposed such a plan. Nearly 60 per cent favored health cooperatives, only 16 per cent opposing them.

Legislation Proposed and/or Enacted in Iowa, Relating
to Certain Medical and Allied Health Services, 1930-1945

Very few bills relating to medical and allied health services have been presented in the Iowa General Assembly during the past fifteen years,

barring those applying to care of the medically indigent. Those which have been presented are classified in this thesis as: (1) bills permitting creation of non-profit associations for the provision of health services; (2) bills relating to creation of county health units; (3) bills concerning provision of local clinics; and (4) others, e.g., hospital ownership and regulation. Bills which were defeated, as well as acts which were passed, are included in the discussion in order to indicate relative pressure for legislation of various types. Since minutes of committees of the General Assembly are not kept after the end of a current session and since no detailed journal of the session of the General Assembly itself, comparable to the Congressional Record, it is impossible to determine arguments presented for or against various proposals. There is thus no record of debates and discussions in the General Assembly.¹

Bills permitting creation of non-profit associations providing health services

Two important enabling acts for non-profit associations have been passed by the Iowa General Assembly. The first, passed in 1939, permits the creation of non-profit corporations to furnish hospital service.²

¹Gustafson, A.C., chief clerk, Iowa State House of Representatives. Des Moines, Iowa. Information concerning hearings and legislative debates in Iowa General Assembly. Private communication. 1944.

²Iowa General Assembly. Acts 48:324. 1939. See also Iowa Code, 1939, ch. 403. 1939.

This is:

An act to authorize non-profit corporations to contract to furnish hospital service to subscribers and to contract with hospitals to furnish hospital service; to provide for the regulation and supervision thereof; to fix and declare their rightful powers, and duties; to declare such corporation to be a charitable and benevolent institution; to prescribe the powers and duties of the commissioner of insurance with reference thereto.¹

The second bill (SF 128) passed in 1945, amended the first to include non-profit associations providing medical service.² The same regulations which were discussed in the preceding chapter and need not be repeated here, apply to both types.

Bills relating to creation of county health units

Several bills proposing consolidation of many small township and municipal boards of health into one county health unit have been introduced into the Iowa General Assembly during the past 15 years. Some of them were permissive in nature, others mandatory. Some related to taxation for such units.

Enabling act for county health units. In 1929 a bill was passed permitting the county board of supervisors "to adopt the county unit plan for public health work, to coordinate and correlate all public health activities within the county and to create a county board of health."³

¹Iowa General Assembly. Acts 48:324. 1939.

²Iowa General Assembly. Acts 51:276-278. 1945.

³Iowa General Assembly. Acts 43:105. 1929. See also Iowa Code, 1939. Ch. 107. 1929.

No provisions were made concerning taxation for public health purposes. Expenses were to be paid by the county board of supervisors "from funds legally available."¹

As described in the earlier chapter on public health services, only four county health units have been established in Iowa. This is due in part to the fact that no provision was made for financing such county health departments. The Iowa State Department of Health suggests that permissive legislation for boards of supervisors to levy a small tax not to exceed one-half mill is necessary in order for some counties to finance a public health program.²

In 1939 a bill (H 203) was introduced authorizing (1) a tax levy for county health work and (2) the combination of two or more counties into health units. The bill died in committee.

Bill to require creation of county boards of health. A bill (SF 391) was introduced in the General Assembly in 1945 to authorize the organization of county boards of health to replace township boards and also to authorize county boards of supervisors to levy county-wide taxes for public health purposes.³

In the hearings on the bill at least one large city opposed the plan on the premise that it would mean that the city would have little

¹Iowa Code, op. cit., Sec. 2246.4.

²Iowa State Department of Health. Biennial report. 1943/44: 124, 1944.

³Iowa General Assembly. Senate. Journal of the Senate 51:483.
Des Moines, Iowa. 1945.

less representation on a county board of health but would pay more than it does now.

Mayer Forrest Olson of Sioux City stated, for example, that

At present, Sioux City spends \$34,000 a year on its health department, and it is a good one. This bill would allow \$112,000 to be levied, and Sioux City would pay \$79,000 ... Sioux City has four-fifths of the population of the county and one-fifth of the supervisors. Why should the people of any city be taxed on that basis?"¹

Fear was expressed that the State Department would make the rules and regulations and that local rule would suffer.² In the Senate debate on the bill it was stated also that the measure "sought to add to centralization of power in the county seat at the expense of local communities."³

On behalf of the bill, Dr. Bierring stated that less than 20 per cent of the township boards of health function now. Mr. A.H. Wieters, state sanitation engineer, pointed out that a larger unit is needed in order to operate efficiently. He stated that in order to get uniform health regulations in the area around the Des Moines ordnance plant at Ankeny, it was necessary to bring six township boards of health together. He stated that "disease knows no boundary line. Cities can be healthy

¹Des Moines Register. Sioux City hits county health plan. The Des Moines Register. Des Moines, Iowa. Jan. 23, 1945. p. 1.

²Ibid.

³Des Moines Register. County health bill defeated. The Des Moines Register. Des Moines, Iowa. Mar. 23, 1945.

only so far as the surrounding country is healthy."¹

The bill was defeated by a vote of 31 ayes and 67 nays.²

Bills concerning provision of local clinics

In 1941 a bill (SF 60) passed the Senate to authorize appropriations by counties, cities, or towns for the support of health clinics. However, the companion bill (H 178) did not pass the House. A similar bill (H 306) was passed by the House in 1939 but not by the Senate (SF 235). There was also in 1939 a bill in the House (H 219) relating to dental clinics in connection with schools.

There were some proposals concerning public health units in 1933. One bill (SF 334) was introduced to provide funds to be administered by the State Department of Health for demonstration and maintenance of full-time county health nurses. It did not pass.

Other bills relating to health services

The other bills relating to medical and allied services which were introduced in the General Assembly during this period were concerned in the main with ownership and regulation of hospitals, both private and government, in particular county hospitals, and with proposals for care of the medically needy.

The Social Service Act was passed during this period, in 1937,³

¹Des Moines Register. Sioux City hits county health plan, op. cit.

²Iowa General Assembly. House. Journal of the House 51:876, 877. 1945.

³Iowa General Assembly. Acts 47:353. 1937.

which created the State Department of Social Welfare. The Iowa Emergency Relief Administration was dissolved and its work taken over by the new department.

A bill (SF 82) and an amendment (SF 371) were passed in 1943, permitting taxpayers to deduct from income tax for medical care which costs more than five per cent of net income and not over \$2,500 for the head of a family or \$1,250 for other individuals.¹

Suggested legislation

The Iowa State Department of Health has made the following recommendations:

1. That new legislation be sought establishing county boards of health to replace township boards of health; that such boards be given power to regulate all phases of public health; that counties be empowered to employ necessary personnel to carry out a health program and that counties be empowered to levy taxes for health purposes.
2. That central water and sewage laboratory facilities be established in Des Moines.
3. That new legislation be sought for the protection and preservation of the state underground water resources.
4. That the Housing Law be revised and its application extended.
5. That the laws be revised permitting establishment of sanitary districts for water and sewage purposes outside municipal boundaries.
6. That the Plumbing Law be revised making the State Plumbing Code of state-wide application and providing for uniformity of procedure in licensing of plumbers.²

¹Iowa General Assembly. Acts 50:208-209. 1943.

²Iowa State Department of Health. Biennial Report 1941/42:117. 1942.

**Issues Involved in Social Action
for Providing Medical and Allied
Services on a Broad Basis, with Special
Reference to Such Provision by
Federal Government**

There are several important issues in various proposals for provisions of medical and allied services. The ramifications of the proposals are many and complex. They cannot be explored fully in this thesis. Most of them are a part of the basic issue of consumers' sovereignty.

These issues include the following: freedom of choice on the part of the consumer, personal relation between patients and physician, freedom of enterprise and initiative on the part of the physician, concentration of power, effects of paternalism on the citizens of the nation, costs and administration of proposed programs. These are discussed briefly in this section.

Certain major issues

Freedom of consumers' choice. One of the principles of our ideal of free enterprise and free competition is freedom of consumers' choice. There is fear on the part of opponents of some of the plans included in this chapter, in particular the tax-supported medical care or health insurance systems, that freedom of choice is endangered.

It should be pointed out, however, that even under the traditional pattern of selection of health services existing in most places today, there is not complete freedom of choice. Factors affecting availability of

physicians, discussed in Part III, enter into this picture. There is no freedom of choice if there is but one physician, or none at all, in the community. There is no freedom of choice in specialists if no specialists are available. Inadequacy of family income precludes freedom of choice. So does lack of knowledge of facilities available, or inability on the part of the consumer to judge quality of service or how well it fits his need. This is particularly true in the case of special services, when the patient must visit several different physicians. The patient's decision frequently rests on the advice of friends or relatives who themselves have little knowledge upon which to base their recommendations. In some cases there is restriction of freedom of choice by the organization of hospitals which limit choice of physicians to staff members.

There appears to be nothing in the proposals for reorganization of medical and allied health services discussed in this chapter which would restrict freedom of choice of physicians in the part of the consumer any more than it is restricted already, if as much so. The suggested plans relate in part to method of payment.

Personal relation between patient and physician. The personal relation between patient and physician is tied up with the issue of freedom of choice of physician on the part of the consumer. The patient's trust and confidence in his physician are of prime importance.

With respect to the personal relation between patient and physician, the Committee on the Costs of Medical Care states:

The preservation of a personal relationship between patient and physician is an essential element in safeguarding the quality of medical practice. This relationship includes not only the privileged confidential communications of patient to physician which are recognized as inviolate by law, but also the relation involved in the communication of his medical history to any physician chosen by the patient and the continuing mutual responsibility between patient and physician. This is in no way inhibits the patient from giving his confidence to different physicians or to the medical integrator of a group of physicians. The business relation between physician and patient is not considered a necessary part of the personal relation as defined above nor does the definition carry a commitment for or against any scheme of medicine.¹

There are several factors to be considered with respect to personal relationship between patient and physician. In the first place, many medical and allied services do not involve direct personal relationship between patient and physician. As discussed in Part I, many health services are quite impersonal. In the second, it is possible that less of this personal relationship exists today than superficially is believed. It is likely that the "sacred personal relation" exists in practice only to a limited extent.

The mobility of physicians in rural areas, discussed in Part III, is evidence of lack of continuity in the personal relation. The random choice of specialists by patients is another sign of absence or discontinuity of the personal relation. The frequency with which patients are reputed to change physicians in some areas is another.

The matter of payment of fees, although involving primarily a business relationship between patient and physician which need not enter into the

¹Committee on the Costs of Medical Care, Medical care for the American people, p. 39.

personal relationship defined above, may sometimes affect the personal relationship. The question of fees on occasion is an obstacle to optimum professional relationship, particularly when large fees are involved, or when fees are uncertain or when their payment is uncertain. An element of embarrassment with respect to fees, or fear on the part of the patient that fees will be higher than he can pay, results in a certain degree of tension or element of defensive barrier on the part of the patient. It is argued that some system of prepayment would eliminate the embarrassment involved in this financial relation. It would eliminate, as well, the element of charity which is present in the fee-for-service method when small fees or none at all are charged to families of low income.

Freedom of enterprise and initiative. As described above, opponents of social insurance for health argue that such a program as that proposed in the Wagner-Murray-Dingell bill threatens regimentation of physicians. Proponents of such insurance maintain that private practice of medicine would be strengthened rather than destroyed by such a program. They believe that there would be competition for patients on the basis of satisfactory service. Physicians would be free to join the insurance plan or not.

Opponents to the Wagner-Murray-Dingell bill fear its potentialities for dictatorship. They fear that it will rob the individual physician of all initiative and ambition, and that he will have nothing to strive for, that he will be a mere slave of the state. They fear also that such a bill will open the way to centralized federal control of all professions. For example,

Dr. Felix Underwood, Executive Officer of the Missouri State Board of Health and President of the American Public Health Association, stated that the passage of the Wagner-Murray-Dingell bill of 1943 would result in revolutionary change in the practice of medicine and put the federal government in virtual control of medicine and practitioners of medicine, as well as of hospitals and that the Surgeon General would have virtually dictatorial powers. He charged that the bill was introduced during the turmoil of war and without consultation with the official representative of health and medical professions and related agencies, such as the American Public Health Association, The American Medical Association and even the Surgeon General and his staff.¹

Free competition, however, requires a legal framework in which to operate. There are restrictions to individual physicians which come in this category. In the first place, there are compulsory standards set up by the government for the protection of the public, i.e., requirements for licensing of physicians. In the second place, custom, tradition, and ethics are all important in the medical profession. The Principles of Medical Ethics of the American Medical Association state that "ethical principles have been formulated into definite codes which embody the tested and approved experience of the profession and elaborate provisions have been made for their enforcement."²

¹Underwood, Felix. Ament the new Wagner bill. U.S. Cong'l Record 89:4206. 1943.

²American Medical Association, Bureau of Medical Economics, An introduction to medical economics, p. 14.

These regulations by the profession and by the government are beneficial as long as they serve to protect the public in general. Along with these ethical principles established by the profession have been evolved working rules, traditions relating to fees, and types of practice. These are not a part of legal framework to protect free competition. For example, opposition to experimentation in group practice may hinder progress. There is some evidence that this has been the case in the "disciplining" of some physicians who have been willing to try new types of financial or administrative organization, as illustrated in the case of physicians connected with the Group Health Association in Washington and the Farmers' Union Cooperative Hospital in Elk City, Oklahoma.

When the regulations happen to benefit the profession alone the story is somewhat different. In this case these regulations are not a part of a legal framework to protect competition but an interference with it. These interferences may be of at least two types, oligopoly and monopolistic competition. It goes without saying that in many communities one or two doctors have full command of services provided. In some cases, as discussed later under consumers' sovereignty, services can best be provided by such monopoly or even by state control: in others they cannot. In either case, free enterprise and free competition are absent. There are in the provision of medical and related services certain elements of oligopoly. That is, there may be in a community relatively few physicians who explicitly or implicitly agree on certain policies of practice or fees. Each is affected by the behavior of the others and in turn his behavior affects them. There is likely to be agreement on fees for certain services. There is little or no price.

competition. A single physician is not likely to change his price from the fee schedule suggested by the local medical society. He may want to charge less but he recognizes that if he does others may charge less and start a downward spiral. The agreement is tied up with professional ethics more than with cut-throat competition, however.

This is not to say that agreement among physicians is harmful. It may serve to maintain high professional standards. It is harmful only when it stands in the way of progress.

Concentration of power. There is, among the medical profession, a certain amount of fear of concentration of control centered in plans for health services involving federal organization. Even though the direct administration of federal grants is left to the states and localities there is fear that the appropriations can be used as weapons for control by the federal government.

It must be pointed out, however, that bureaucratic or other concentration of power is not limited to federal schemes. It is possible for other social groups to gain such power.

Much of the opposition to the Wagner-Murray-Dingell bill has centered around this issue of centralization of power. Some extremists have gone so far as to say that "The Wagner-Murray-Dingell bill is ... a pattern of socialized medicine for a regimented people under a totalitarian state", a "socialized medicine proposal of the leftist group, ... originating in the American Beveridge Plan, the socialization report of the National Resources Planning Committee, approved by pro-communists and socialists."¹

¹ Gerlach, Charles L. Address before Lehigh County Medical Society. U.S. Cong'l Record 89:A4989. 1943.

Opponents to the National Health Bill expressed fear of a tendency they saw for bureaucracy to expand its power. They charged, for example, that the National Health Conference, out of which grew the National Health Bill, was composed mainly of those known to be favorable to national health plans. The Technical Committee for Medical Care, which worked out details of the National Health Bill, they charged, was composed only of employees of the Social Security Board, the Children's Bureau, and the U.S. Public Health Service. They charged further that the testimony at the hearings before the Senate Sub-committee showed that professional groups such as the American Medical Association and the American Dental Association were not consulted in the original framing of the bill.¹

There is some reactionary opposition by ultra-conservative people who fear any change. They fear that the national health plans which have been proposed are socialistic and revolutionary.

Effects of paternalism on citizens of nation

The issue of effects of paternalism which may be involved in social action to provide medical and allied health services applies in the main to government action although it applies to philanthropic action as well. This is a very large issue which cannot be discussed in detail in this thesis. It involves fear that paternalistic features would destroy habits of self-reliance and individual initiative which have been the fundamentals of the American people.² It involves fear of the softening of the public by too

¹Burke, Edmund. The National Health Act. U.S. Cong'l. Record 86:A35-38. 1940.

²As illustrated in address by Senator Burke before the Chicago Medical Society, Dec. 6, 1939. (Burke, op. cit.)

much given them. Illustrative of the extreme position taken by some individuals in this direction is the fear expressed in a speech that the National Health Bill (S1630) would seriously affect the initiative and character of the next generation.

Medical standards and their maintenance. There seems to be general agreement that the establishment of standards affecting the quality of medical and allied services should be in the hands of medical and allied professions who have the requisite knowledge. The science of medicine, or determination of its content no one would suggest to be outside the domain of the profession.

The organization of this service, the conditions under which facilities are provided, and the financial set-up concern more than the profession. Laymen and the public in general have a vital interest in this aspect. The public has an interest in the optimum distribution of medical and allied services. The advantages of the growth of technology and science related to health can be applied only through adequate social and economic organization.

Costs. The cost of a national health system is another issue concerning which there is disagreement. Costs of health programs are classified as money costs and social costs. Each of these, in turn, is divided into short-range and long-range costs. In the present discussion only long range costs are included.

Social cost. The long-run social cost of sickness has long been recognized. As early as 1948, Shattuck of Massachusetts stated,

The poor have much sickness; sickness brings poverty. This circular relation brings anti-social results. The people who are involved in the vicious circle are trapped; they cannot raise themselves out of it by their bootstraps. Only society which pays a heavy price for this continuing situation can intervene and bring relief.¹

The social cost is quite evident in the costs of dependency caused by illness, permanent disability, or premature death. It is less apparent in the generally decreased productivity of those who are not indigent and yet cannot afford to buy needed medical or allied services. Society has a large stake in measures to reduce the incidence of illness or disability and to minimize their sequels.

Money cost. There is possibility for lessened total long run money cost of health services through better coordination and use of facilities already available. For example, with group practice among physicians, of any of the types discussed in an earlier chapter of Part IV, it is likely that the gap between gross and net incomes of the individual physician could be reduced. This could be done through better use of the physicians' time, shared use and fuller use of equipment for diagnoses and treatments shared use of offices, and of the services of assistants such as laboratory technicians. No doubt some saving in the cost of medical supplies could be made by the large-scale buying of group action.

It has been estimated that the money cost per family for medical and allied services need not be high if family resources are pooled, so that

¹Parran, Thomas. Public health and economics. Social Service Review 12:207. 1938.

families can make small regular payments in place of potentially large, uncertain, and variable fees. This may be done, of course, in voluntary prepayment plans on a small scale, as described earlier. It is obvious that broad coverage, including many families makes a sounder base for such a plan and makes the average cost per family less. Taxation is the surest and most efficient way to collect the necessary funds. The government is the most appropriate agency for handling the large sums of money involved and for handling the immense amount of detail which cannot be avoided in a plan involving as large a number of people.

The Committee on the Costs of Medical Care stated in 1933:

Whether health insurance is offered on a voluntary or a required basis, it could probably be provided for about \$1.50 to \$3.25 per adult wage-earner, per month, with somewhat lower rates for dependents. Required insurance would probably cost somewhat less than voluntary insurance, since there would be no danger of an undue proportion of sickly persons and the administration would be simpler and more direct. The maximum figure, \$3.25 per month, while not greatly higher than present average per capita expenditures, could provide service of substantially larger volume and better quality than the wage-earning population now usually receives, and could furnish funds for adequate remuneration of practitioners. This could be effected mainly by redirection of expenditure and reduction of waste.¹

The viewpoint taken by many people, that basic health care should be provided in the same way that public school education is provided, is expressed by Epstein as follows:

Aside from the question of public health and the prevention of illness, the problem of medical care today is essentially that of distributing the social and economic burden of illness so that adequate medical care will be available to all economic

¹Committee on the Costs of Medical Care, *Medical Care for the American People*, p. 133.

groups, without placing the heaviest burden upon the weakest... The economic load of illness must be spread out among the entire community, to the healthy and well-to-do, as well as the poor and sick.¹

Administration. Many people argue that a broad national health program including health insurance would be too complex and difficult in administration. They fear the danger of over-organization and unwieldiness, the danger of letting the machinery designed to insure better health services acting instead to stifle the chances of getting better services. They fear the red-tape involved and the bookkeeping cost of handling so many small amounts of money.

Consumers' sovereignty, the basic issue

The issues discussed above, except the issue of freedom of enterprise and initiative on the part of the physician, are, in whole or in part, aspects of the basic issue of consumers' sovereignty. Freedom of choice, of course, can exist without consumers' sovereignty: that is, there can be freedom of choice among alternatives in goods or services offered to consumers even though the consumers have had no voice in decisions concerning the kind or relative amount of goods and services which shall be produced. However, freedom of choice is usually considered to be a part of consumers' sovereignty.

Definition. "Consumers' sovereignty is the final authority which consumers as a group exercise over the amount and kind of production ... It is effective when consumers get what they want most fully and freely and at

¹Epstein, Insecurity, p. 445, 446.

the lowest possible cost. It implies that consumers have the utmost freedom in their choices."¹

Methods of attaining consumers' sovereignty. It is commonly thought in our society that consumers' sovereignty is best attained through free enterprise. From the standpoint of the consumer, the purpose of free enterprise and free competition is to provide their wants at the lowest possible cost. Hoyt points out that:

The aims of consumers' sovereignty would be met by free competition on the market for the great bulk of goods and services in the scale of living; there are nevertheless fields in which free private enterprise could not be expected to operate competitively. These fields include the public monopolies, which may be enterprise either public or private, but which in many cases cannot be freely competitive because of the wastefulness of duplication of fixed costs. Consumers' sovereignty itself demands monopoly in some cases.²

Falk declares that the medical profession is probably more analogous to the public utility than it is to producers in our competitive, industrial exchange system. Although the physician is a hypothetical seller of services in a free market he is not free in the same way that a manufacturer is. In a public utility society vests a monopoly subject to limitations and restraints. In the medical profession,

Society determines who may hold himself out as a physician and, in return for his exclusive licensure, exacts from him the price of his professional code. It gives him special privileges in the services he may furnish and sell; but his code requires that

¹Hoyt, Elizabeth E. Consumption in our society. New York, McGraw-Hill Book Co. 1938. p. 75.

²Hoyt, op. cit., p. 82-83.

he shall serve all who seek him out, without regard for their ability to pay.¹

There is some argument for government provision of basic health services as the best way to attain consumers' sovereignty. For example, Hoyt states that:

..... We should recognize that there are fields of consumers' services which governments can provide more effectively than free competition on the market, or which free competition might not provide at all. Consumers' sovereignty here would mean that the government was awake to the interests of the people as a whole and in furnishing services or refraining from furnishing them it was acting on the behalf of all, not merely pleasing some special group.²

Hoyt continues:

There are three main classes of consumers' goods which there is need or place for governments, or at least social agencies, to supply. Private industry, however, may offer all three of these classes to some extent. One of these classes is not easily appropriable services, such as highways. The other two crosscut the former in some cases. These are services in fields involving long-range planning and services believed to contribute in unusual degree to the public good; use of these will be increased if they are offered at little or no cost. Under all three heads come public health services. Control of poor conditions of public health, such as unclean drinking water, and the presence of communicable diseases, is important to everybody, and the service is thus in part non-appropriable; furthermore, although free private enterprise does in many cases promote public health, it does not ordinarily put on long-time programs; and it has much difficulty in persuading people to pay for looking ahead, as, for example, to take health examinations when they are ill.³

¹Falk, Isidore S. An introduction to national problems in medical care. Law and Cont. Prob. 6:501. 1939.

²Hoyt, op. cit., p. 84.

³Hoyt, op. cit., p. 215-216.

Certain health services come in this category of services which are not provided fully, freely, and at lowest cost. Some of these, e.g., services described in the chapters on public health, have been accepted as services which are not most adequately provided by free enterprise. Others, e.g., services of general physicians and of specialists, are not so accepted at the present time.

Of course, other agencies than the government may provide services outside the framework of private enterprise. The consumer cooperatives providing medical services, described in any earlier chapter, are an example. Philanthropic organizations also provide services not under free competition.

However, the danger of imposing plans from above must be guarded against. There may be danger of too much authority being given to the Surgeon-General in the proposed Wagner-Murray-Dingell bill. Proponents of the bill point out that he must act with the advice of an advisory council representing professional and lay groups. If lay groups are represented adequately, consumers' sovereignty can be as fully obtained as by the dollar vote under free competition.

Summary and Conclusions

Federal action since 1930 relating to medical and allied health services has expanded some elements which were present earlier and has added some new elements.

Federal action relating to expansion of local health units in rural areas and to certain direct services to individuals, e.g., maternal and child health programs and clinics of various types, has developed for the most part since 1930. Beginnings had been made in venereal disease control in 1918 and in maternal and child health programs in 1921, but the major development followed the passage of the Social Security Act of 1935, which included grants to aid state and local programs of: (1) expansion of local health units; (2) maternal and child health programs; (3) crippled child programs. Appropriation of local health units are used for a variety of purposes, including disease control, rural sanitation, expansion of staff, training of public health personnel.

Much of the expansion of public health services in Iowa, as in other states, has resulted from federal grants under the Social Security Act and the matching state appropriations required along with them. Funds under the Social Security Act were increased in 1939. The Venereal Disease Act of 1938 also provided grants for expansion of venereal disease control.

Several bills to increase benefits of the Social Security Act have been introduced. Chief among these are the National Health Bill of 1939

and the Wagner-Murray-Dingell bills of 1943 and 1945.

Numerous proposals for federal aid to local areas for hospital construction and maintenance, with appropriations also for preliminary surveys of hospital needs, have been introduced. Chief among these have been proposals under the National Health Bill of 1939, Wagner-George-Fulmer bill of 1940, Wagner-Murray-Dingell bill of 1945, and Hill-Burton bill of 1945.

There have been from time to time proposals for combining government agencies having to do with health services under a National Health Council or a U.S. Department of Health, with its head a member of the President's cabinet.

Two federal projects have aided local communities, particularly low income families, to obtain medical and hospital services and at the same time have served as experiments in prepayment plans. These are the health programs of the U.S. Farm Security Administration and the six experimental county units sponsored by the U.S. Department of Agriculture. Their major contribution has been to demonstrate that prepayment of a fixed amount for medical care, on the insurance principle, is advantageous to both families and physicians and that cooperative group action between patients and physicians is advantageous. They have indicated, too, that prepayment plans need to cover a large number of families in order to be successful.

A few bills for social insurance for health have been introduced in Congress since 1930. These have received wide interest. Earlier proposals

for government insurance of this type were on the state level. Several states considered such plans during the decade from 1910 to 1920 but no state plans were established. The fact that such proposals are controversial indicates that they touch upon important issues.

The most important bills proposing social insurance for health, i.e., those which have received the most attention from professional groups and from the general public, are the Wagner-Murray-Dingell bills of 1943 and 1945. Both of these have proposed federal medical, hospitalization, and related benefits to families as a part of a national social insurance system which includes unemployment insurance, insurance for old age, and survivors insurance. The bills have been in the form of amendments to the Social Security Act.

The proposals for health insurance under the two Wagner-Murray-Dingell bills were similar except that the 1945 bill included more benefits. It included dental and home nursing benefits in addition to services of physicians, both general physicians and specialists, and laboratory service. Hospital services under the 1945 bill were increased from 30 days to 60 days.

There has been among various professional and lay groups general agreement with respect to federal aid to local areas but much disagreement concerning the scope and degree of aid.

In general, the medical profession opposes federal health insurance. It favors federal aid to local agencies for hospital construction. It is somewhat skeptical toward aid for local public health services but more favorably disposed to such aid than formerly was the case. The

American Hospital Association and the two main associations of nurses favor hospital construction aid. These groups also favor federal aid for state hospital surveys to determine needs.

Farm groups are not entirely in agreement with one another. In general, the American Farm Bureau and the National Grange are more conservative than the Farmers Union. Farmers Union, for example, favors government provision of basic medical and allied health services for all families, similar to the provision of basic education. Its stand is that health services are a social need just as education is.

The Farm Bureau endorses federal aid to public health services, of the type already established in Iowa, and federal aid for hospital surveys and hospital construction in local areas. Maintenance of hospitals, it maintains, should be entirely a local responsibility. The Bureau opposes compulsory health insurance. It opposes the Wagner-Murray-Dingell bill.

Labor groups, represented by the CIO and AF of L favor the proposals for federal action which are described in this thesis, including the Wagner-Murray-Dingell bill.

Action by the Iowa General Assembly with respect to the medical and allied services included in this thesis has been passing of enabling acts for establishment of county health units (1929) and for the organization of non-profit associations providing hospital services (1939) and medical (1945). A bill requiring establishment of county or multi-county health units and authorizing county taxes for health purposes was defeated in 1945.

PART V. SUMMARY AND CONCLUSIONS

SUMMARY AND CONCLUSIONS

This study assembles data concerning the need for certain medical and allied services in Iowa, the extent of demand for such services and factors affecting such demand; the status of supply of certain health services and factors affecting it; and methods of organizing such services, including action by lay and professional groups and by the federal, state, and local government. Attention is focussed primarily on rural areas in Iowa. Specific services examined are limited in the main to those of physicians, general hospitals, and certain public health services.

General Situation in Iowa

Status of health in Iowa

Comparison of Iowa with United States. The status of health in Iowa compares favorably with the average in the United States as a whole, insofar as available measurements such as infant mortality rates, maternal mortality rates, and age-adjusted mortality rates reflect status of health. However, Iowa does not stand at the top of the list. When the states are arrayed from high to low according to a three-year average of infant mortality rates (1939, 1940, 1942), Iowa stands in twelfth place. Iowa was also twelfth among the states in maternal mortality rates in 1940. Age-

specific mortality rates in Iowa are, in general, lower than the average for the nation.

Rural areas in Iowa rank high among other rural areas of the nation in health status according to the measurements used above. In a three-year average of infant mortality rates in rural areas in all the states Iowa had the lowest average rate. However, in 22 states places with populations of 2,500 to 10,000 had lower rates than places of that size in Iowa. In 18 states, cities with population of 10,000 or over had lower rates than cities of that size in Iowa.

Comparisons among areas within Iowa. Health status in Iowa, measured by available indices, chiefly infant mortality and age-adjusted rates, is highest in rural areas and lowest in places from 2,500 to 10,000 in population. In 1940, for example, the infant mortality rate in rural areas was 31.7 deaths per 1,000 live births, contrasted with 53.6 in towns with populations of 2,500 to 10,000. The average for the state was 36.5. The maternal mortality rates in 1940 were 2.3 deaths per 1,000 live births in rural areas of Iowa and 5.8 in places with populations of 2,500 to 10,000, compared with 3.4 for the state. The age-adjusted total mortality rates, using the population of 1940 as the standard, were 10.4 deaths per 1,000 population in rural areas, 13.4 in places of 2,500 to 10,000 population, and 10.4 for the state as a whole.

Mortality of all of the types used in this study, infant, maternal, age-specific, cause-specific, as well as crude and age-adjusted mortality rates, runs consistently higher in places from 2,500 to 10,000 in population.

Relative need for health services in rural and urban areas in Iowa

According to the above data on mortality rates the greatest relative need for health services is in places from 2,500 to 10,000. However, some differences in need for health services of specific type occur between rural and urban areas because of differences in age distribution of population. Population data indicate that there is probably greater need in rural areas for services relating to illnesses peculiar to children and to old persons. Before further conclusions as to the quantitative need for specific health services in Iowa can be drawn, more data on morbidity in the state are needed.

Adequacy of supply of certain health services in Iowa

Adequacy of supply of physicians in Iowa. Just before the outbreak of World War II, Iowa had a nearly adequate total supply of physicians, as measured by the quantitative standard recommended by the Committee on the Costs of Medical Care, although 18 states had more physicians in proportion to their population. However, the supply of physicians in rural areas in Iowa was inadequate by this measure. There is need for improvement in the distribution of physicians within the state. The number of persons per physician in Iowa as a whole was approximately 860 in 1940, compared with a recommended standard of 740; in places under 1,000 there was but one physician per 1,500 persons, which was less than the war-time emergency standard set up by the War Manpower Commission. Among Iowa counties, 11 had the recommended number of

physicians relative to population. Three counties had less than the war-time emergency standard, i.e., less than one physician per 1,500 population.

Adequacy of supply of general hospital facilities in Iowa. Iowa needs more than 4,000 additional general hospital beds in order to reach the standards recommended by the Committee on the Costs of Medical Care. There are at present 2.8 general hospital beds per 1,000 population in Iowa, compared with a recommended standard of 3.5. Among the states, in 1940 36 had more general hospital beds in proportion to their population than Iowa.

The distribution of available hospitals in Iowa is, on the whole, fairly good. All but two small areas in Iowa are within 35 miles of a general hospital. However, the distribution of general hospital beds is uneven. The proportion of general hospital beds relative to population is much greater in larger places. Iowa localities with population from 10,000 to 50,000 have the greatest supply of general hospitals. Places of this size have 6.0 general hospital beds, contrasted with 3.3 in towns of 2,500 to 10,000 population, 1.1 in places with 1,000 to 2,500 inhabitants, and 0.3 in places with under 1,000 people. An increase in the number of general hospital beds is needed in places with 2,500 to 10,000 population, or perhaps one might better say, in places with from 1,000 to 10,000 inhabitants. More definite conclusions concerning hospital needs in Iowa should await the findings of the State Hospital Survey Committee.

Adequacy of public health services in Iowa. In Iowa, as in the United States as a whole, public health services are expanding to include more preventive services and some additional diagnostic and curative services. Local services, especially in rural areas, have been aided during recent years by state and federal funds, particularly in expansion of public health units, maternal and infant health services, crippled children programs, and control of certain diseases. Funds administered by the Iowa State Department of Health increased from approximately \$150,000 in 1932-1933 to about \$865,000 in 1942-1943. Less than a third of the funds available in 1942-1943 was appropriated by the state, however; about two-thirds came from the federal government, and there was a small amount from other sources, such as license fees.

Increased personnel is needed in public health work, e.g., public health nurses and sanitary engineers. Iowa is below many states in per capita expenditures for public health expenditures. In 1940 the per capita expenditure of funds administered for health purposes by all state agencies in Iowa was \$1.48. The average for all of the states was \$1.90.

Need for more effective public health units

In Iowa consolidation of numerous, small health jurisdictions into larger, more effective public health units is needed. In most cases, these could be organized on a county basis, and in some cases on a multi-county basis. Provisions for county taxes to be used for specific health purposes are also needed.

Need for better and cheaper means of paying for health services in Iowa

Data on a national scale for families in all income groups indicate a correlation between family income and expenditures for health services. Analysis of expenditures of a selected group of 108 Iowa farm families of fairly high income showed: (1) no significant correlation between net income and expenditures for health services, but (2) highly significant correlation between cash living expenditures and expenditures for health. This particular sample, however, is not a typical one. A similar analysis of expenditures by low income farm families very likely would show more correlation between income and expenditures for health.

For many families the high and unpredictable cost of medical and allied health services is an obstacle to obtaining adequate services. It is probable that lower prices, known in advance so that families can plan health expenditures, would lead to increased use of facilities. It is likely, too, that prepayment of this charge would result in increased use of preventive services.

Methods of More Effectively
Supplying Health Services

There are two broad possibilities for easing the payment of medical and allied health services for individual families. One is coordination and grouping of health facilities in order to make their functioning more efficient, thereby reducing cost as well as improving the services themselves.

The other, which is closely related, is prepayment of health services. Closely connected, also, is possible subsidy by the government, either federal or state.

Need for experimentation

Experimentation with various plans for grouping of health services and for more detailed analysis of specific needs and facilities is needed before definite recommendation for a program can be suggested. It may well be that several types of grouping are better than any one of them alone.

Local plans

The private clinic organized by physicians, the consumer cooperative for providing health services, and, in some cases, a municipal doctor plan such as that used in Canada, all have potentialities for increasing the efficiency of health facilities. Probably the private clinic is feasible for localities over 5,000 and possibly for those over 2,500 population. For small localities the consumer cooperative for health service may be more feasible.

Some type of community health centers seems a likely solution to the question of obtaining services of physicians and general hospitals in many areas of Iowa. In rural communities, joint housing of public health facilities and offices of physicians in private practice appears necessary in order that facilities such as laboratories and certain diagnostic and therapeutic equipment may be provided without unnecessary

and expensive duplication.

Whatever plan is adopted by a locality, there is need for coordination or integration of facilities between localities for some services. For example, some type of radial organization of hospitals appears desirable for Iowa.

Prepayment plans offered by non-profit associations

It is likely that prepayment plans for hospital services offered by non-profit associations, e.g., the Blue Cross plan, which has been established during the past 15 years, will continue to grow in Iowa, with increasingly more farm families participating. The medical service plan now in operation in Iowa is not as yet important in rural areas.¹ It appears to have potentialities for valuable contribution in provision of health services.

The advantages of hospital and medical service plans available in Iowa are that: (1) they provide services rather than cash indemnity; (2) one policy covers the entire family rather than a single individual; (3) their annual rates are low as compared with commercial insurance premiums; (4) they are likely to foster earlier treatment and preventive care. One disadvantage is that although benefits under some plans are generous, there still is not as wide coverage as families need. There is also some question as to whether the plans in operation have sound

¹See p. 500-501.

actuarial policy and can continue to offer generous benefits.

Expansion of public health programs

It is probable that federal and state agents to aid local public health programs will continue to expand. Emphasis on preventive measures in public health are likely to become increasingly important.

Recommendations which can be made at the present time include continued expansion of local public health units in Iowa both in number and in type and quantity of facilities. More specialists may well be made available to assist in clinics at local health centers and more diagnostic equipment made available at local health centers for local physicians in private practice. All patients and physicians should have access to necessary specialist and consultant services and access to necessary laboratory and related aids to diagnosis and treatment.

Social insurance for health

In the opinion of the author, social insurance for health, to the fore of public interest during the past 15 years, is not likely to be established in this country in the immediate future. In the long run, however, it is quite possible that such insurance is an answer to provision of adequate health services.

Immediate Goals in Iowa

In Iowa, immediate goals suggested on the basis of this study are:

1. Formation of county health units to replace township and municipal health jurisdictions, together with (1) authorization of taxation for health purposes, or (2) provision of funds from the state, augmented by federal grants. Personnel needed on the staff of the county health unit includes, in addition to the county health office, one or more sanitary engineers, public health nurses, food and milk inspectors, and laboratory technicians.
2. Building of new hospitals and health centers or expansion of existing ones. Such a program should be on a state or area basis, with all communities represented in the planning, in order to make available provisions for adequate equipment and personnel and to avoid needless duplication.

It is suggested that the health centers be owned by local communities or by non-profit associations. It is further suggested that communities study the possibility of having this type of hospital health center and the public health unit housed together and of furnishing as well offices for physicians in private practice, to whom the laboratory, diagnostic, and therapeutic equipment is available.

3. Action by local communities to attract competent physicians. The above recommendations enter into this consideration since availability of facilities is important. Small localities may find the answer to these recommendations in the organization of a health cooperative,

using the prepayment plan such as the Sandhills, Nebraska, plan.

4. Expansion of non-profit hospital and medical service plans.
5. Active participation by all groups in a locality in discussion, analyzing and planning, of health programs. This includes continued and increased educational programs by groups such as the State Department of Health, the Farm Bureau, the Agricultural Extension Service, Federated Women's Club, and Parent-Teachers Associations.

In the opinion of the writer these recommended programs are best locally sponsored and administered. It seems wise for federal action to assist such programs with money grants, with broad policies established to insure high professional standards, but with enough leeway to allow for variations in programs to fit local needs.

Suggested Areas for Research

The following avenues of research concerning medical and allied health facilities in Iowa are suggested by this study:

1. Survey of morbidity in rural and urban areas in Iowa in order to determine whether types, frequencies, and durations of illnesses are different in rural and urban areas and whether differences, if any, are qualitative or quantitative. At present, data of this type are not available in Iowa. The schedule method with personal interviews is recommended, including periodic interviews of a representative sample of the population in Iowa.
2. Analysis of accidents occurring on farms, as to type of accident, frequency of incidence, and extent of disability incurred in order to determine the extent to which farming as an occupation compares with other occupations with respect to the probability of suffering from accident. This is a corollary of the above suggestion.
3. Further research as to why mortality rates are high in localities with populations of 2,500 to 10,000 as compared with other areas in Iowa. There is also need for separation of vital statistics for farm and non-farm rural population in order to have a measure of health status of farm people and people in villages in contrast to population in places from 2,500 to 10,000.
4. Survey of uses of services of medical and osteopathic physicians, chiropractors, and cultists in rural areas in Iowa. A similar study in urban areas would be helpful for comparisons. A suggested

method is the interview of a representative sample of the population. A preliminary survey, in one county, similar to the studies by Almaack, Lively, and Meier in Missouri, seems a logical approach. Hospital records, and possible records of individual practitioners, if they are made available, offer sources of information, although the population included would not be representative of the population as a whole. Types of questions to be answered include (1) number of visits per capita and per family to practitioners of various kinds and (2) proportion of families visiting practitioners.

Along with the above, a study of total supply and distribution of dentists, certified medical specialists, osteopathic physicians, nurses (both registered and practical nurses), chiropractors and cultists in Iowa would be helpful. This could be done, in most cases, by use of directories of these groups, similar to the study of total supply of medical physicians in Iowa made by Mongelberg, a relatively simple matter.

The distances travelled by families in order to reach practitioners need to be included. The distribution of practitioners on a trade area basis, rather than county basis or basis of general size of locality, would give a more accurate picture of the supply of practitioners.

5. Survey of costs of medical services used by rural people. There are relatively few data on prices of health services in Iowa. A study of the cost of a well rounded program of direct medical care and of public health services in Iowa is needed. A combination of methods might be used here. Analysis of the expenditures of families, with records kept with the assistance of a field workers so that items entered would be usable for the study, is the most direct approach. Records properly kept for this purpose would show the composition of health expenditures. At the present time no adequate data of this type are available in Iowa. Suggested fee schedules of medical societies might be helpful.

SELECTED REFERENCES

- Advisory Board for Medical Specialties. Directory of medical specialists certified by American Boards, 1939. New York, Columbia Univ. Press. 1940.
- Allen, Francis R. Development of the public health movement in the Southeast. Social Forces 22: 67-75. 1943.
- Almack, Ronald B. The rural health facilities of Lewis County, Missouri. Mo. Agr. Exp. Sta. Res. Bul. 365. 1943.
- Altmeyer, A.J. Social security for farm people. Economic Security Bul. 7, no. 4: 1-2. 1944.
- Altmeyer, A.J. Social security in relation to agriculture and rural areas. Social Security 3, no. 7: 3-15. 1940.
- American College of Surgeons. Minimum standards for hospitals for approval by the American College of Surgeons. Bul. of Amer. College of Surgeons 29: 337-338, 348-349. 1945.
- American Farm Bureau. Convention resolutions. The Nation's Agriculture 20, no. 1: 32. 1945.
- American Farm Bureau. Resolution adopted at A.F.B.F. convention, no. 24: approval of resolutions of Associated Women of A.F.B.F. The Nation's Agriculture 14, no. 1: 10. 1939.
- American Farm Bureau Federation. Resolutions of the Associated Women of the American Farm Bureau Federation, adopted at the eighth annual convention. [Resolution no. 6 on health.] The Nation's Agric. 8, no. 1: 16. 1943.
- American Farm Bureau Federation. Resolution of the Associated Women of the Farm Bureau Federation, adopted at the Ninth Annual Convention, January, 1944. [Resolution no. 9 on health.] The Nation's Agric. 19, no. 1: 16. 1944.
- American Farm Bureau Federation. Senate group told rural health bill gets A.F.B.F. backing. American Farm Bureau Official News Letter 24, no. 6: 4. 1945.
- American Hospital Association. American hospital directory, 1945. Chicago, The Association. 1945.
- American Hospital Association. Blue Cross hospital service. In American Hospital Directory. p. 98-102. Chicago, The Association. 1945.

American Hospital Association. Commission on Hospital Care. Hospital survey news. Chicago, The Association. July, 1945.

American Hospital Association. Commission on Hospital Care. Organization and survey procedure for a state hospital survey. Chicago, The Association. 1944.

American Hospital Association. Commission on Hospital Care. Scope of study and planning for a state hospital survey. Chicago, The Association. 1944.

American Hospital Association. Hospital Service Plan Commission. Blue Cross Hospital service plans. Chicago, The Association. 1944.

American Hospital Association. Hospital Service Plan Commission. Hospital bill protection available to small groups and individuals. Blue Cross Protection 1, no. 3: 3. 1944-1945.

American Hospital Association. Hospital Service Plan Commission. National Grange endorses voluntary health services. Blue Cross Protection 1, no. 3: 4. 1944-1945.

American Hospital Association. Hospital Service Plan Commission. Non-profit principle at work. Blue Cross Protection 2, no. 1: 2. 1945.

American Hospital Association. Hospital Service Plan Commission. 21 medical plans are coordinated with Blue Cross. Blue Cross Protection 1, no. 3: 3. 1944-1945.

American Journal of Public Health. The Wagner-Murray Bill. [editorial] Amer. J. Public Health 33: 1274-1276. 1943.

American Medical Association. Organization of medical services. Chicago, The Association. 1937.

American Medical Association. Platform. J. Amer. Med'l Assoc. 113: 1967. 1939.

American Medical Association. N.Y.A. health program. J. Amer. Med'l Assoc. 116: 2511. 1944.

American Medical Association. Proceedings of special session of the House of Delegates. J. Amer. Med'l Assoc. 114: 2559. 1940.

American Medical Association. Bureau of Medical Economics. Distribution of physicians in the United States. Chicago, The Association. 1936.

American Medical Association. Bureau of Medical Economics. Factual data on medical economics. Revised. Chicago, The Association. 1940.

- American Medical Association. Bureau of Medical Economics. Group hospitalization: a report of experiences. Chicago, The Association. 1937.
- American Medical Association. Bureau of Medical Economics. An introduction to medical economics. 2nd ed. Chicago, The Association. 1936.
- American Medical Association. Bureau of Medical Economics. Medical care in the United States: supply and demand, 1939. p. 7-21, 44-47. Chicago, The Association. 1940.
- American Medical Association. Bureau of Medical Economics. Organization of medical services. Chicago, The Association. 1937.
- American Medical Association. Bureau of Medical Economics. Organized payments for medical service. Chicago, The Association. 1939.
- American Medical Association. Bureau of Medical Economics. Report. J. Amer. Med'l Assoc. 116: 1801-1805. 1941.
- American Medical Association. Committee on Legislative Activities. Report. J. Amer. Med'l Assoc. 116: 2784. 1941.
- American Medical Association. Council on Medical Education and Hospital Service. Hospital service in the United States. J. Amer. Med'l Assoc. 96: 1615.1931; 116: 1061.1941; 121: 1018.1943; 122: 1012.1944.
- American Medical Association. Council Medical Education and Hospitals. National approval standards for hospitals and schools: essentials of a registered hospital. J. Amer. Med'l Assoc. 112: 2166-2168. 1939.
- American Medical Association. Directory Department. Number of physicians in the United States, by county, July 1, 1938. Chicago, The Association. 1938.
- American Public Health Association. Desirable minimum functions and organization principles for health activities: an official declaration. Amer. Public Health Assoc. Yearbook, 1940/41. p. 43-50. 1941.
- American Public Health Association. An official declaration of attitude of the American Public Health Association or desirable standard minimum functions and suitable organization of health activities. Amer. J. Public Health 30: 1099-1106. 1940.
- American Public Health Association. Committee on Administrative Practice. Progress report: units of local health service for all the states. Amer. J. Public Health 33: 404-409. 1943.

- American Public Health Association. Committee on Administrative Practice. Sub-committee on Rural Health. A study of rural public health service. New York, The Commonwealth Fund. 1933.
- American Public Health Association. Committee on Forms and Methods of Statistical Practice. Age adjustment of death rates. Amer. Public Health Assoc. Yearbook, 1937/38. p. 164-178. 1938.
- American Public Health Association. Committee on Forms and Methods of Statistical Practice. Age adjustment of the crude death rate. Amer. Public Health Assoc. Yearbook, 1939/40. p. 123-131. 1940.
- American Public Health Association. Committee on Water Supply. Water-borne outbreaks in the United States and Canada, 1930-1936, and their significance. Amer. Public Health Assoc. Yearbook, 1937/38. p. 157-158. 1938.
- Armstrong, Donald B., Dublin, Louis I., and Steele, Elizabeth. The cost of medical care: a study of costs in the families of the field employees of the Metropolitan Life Insurance Company. New York, Metropolitan Life Insurance Co. 1934.
- Avnet, Helen Hershfield. Voluntary medical insurance in southern Ontario. Med'l Care 4: 218-220. 1944.
- Barreto, Joao de Barros. Curative medicine in rural areas. League of Nations Bul. of the Health Organisation 7: 988-1015. 1938.
- Bassford, Horace R. Health insurance. Encyclopedia Americana 14: 32-34. 1942.
- Beck, Dorothy F. and Jessop, Mary F. Costs of dental care for adults under specific clinical conditions. Lancaster, Penn., American College of Dentists. 1943.
- Boeler, O. W., Hospital Service of Iowa. Des Moines, Iowa. Information on enrollment in Iowa Blue Cross Plan. Private communication. 1946.
- Bierring, Walter L. Federalization of the practice of medicine. Iowa Med'l Soc. 34: 38. 1944.
- Boas, Ernest P. Statement before hearing on Hill-Burton Bill S 191, Feb. 26, 1945. The Physicians Forum Bul. p. 3-5. March, 1945.
- Borgman, Elizabeth. State Home Management supervisor, Farm Security Administration. Des Moines, Iowa. Information on health plans of Farm Security Administration. Private Communication. 1945.

- Fowler, John P. and Sycamore, Leslie K. The responsibility of the voluntary hospital and its medical staff in the distribution of medical service. In the United Hospital Fund of New York. The voluntary hospital today and tomorrow. p. 35-45. New York, The Fund. 1944.
- Boyd, Edith M., Associate Secretary, Committee on Administrative Practice, Amer. Public Health Assoc. New York. Information standards for physicians and for hospital beds per 1,000 population. Private communications. 1944, 1945.
- Boyd, Mildred E. The health program of Johnson County, Iowa. Unpublished M.A. thesis. Iowa City, The State University of Iowa Library. 1938.
- Bradbury, Samuel. The cost of adequate medical care. Chicago, The Univ. of Chicago Press. 1937.
- Breslow, Lester, Shalit, Pearl R. and Anderson, Gaylord. Parental and familial factors in the acceptance of diphtheria and smallpox immunisation. U.S. Public Health Reports 58: 384-396. 1943.
- Britten, Rollo H. Summary of physical findings on men drafted in the World War. U.S. Public Health Reports 56: 46-62. 1941.
- Britten, Rollo H., Collins, Selwin D. and Fitzgerald, James S. The national health survey: some general findings as to disease, accidents, and impairments in urban areas. U.S. Public Health Reports 55: 444-470. 1940.
- Brown, Arline Martin. Medical service plans for Farm Security Administration families and some implications of these for reorganization of medical care for rural families, with special reference to Iowa. Unpublished M.S. thesis. Ames, Iowa, Iowa State College Library. 1943.
- Brown, Martin W. American experimentation in meeting medical needs by voluntary action. Law and Cont. Prob. 6: 507-515. 1939.
- Budolfson, Marie. Expenditures for living, 126 Iowa Farm Business Association families. Iowa Agr. Exten. Serv., Ames, Iowa, Iowa State College. 1943.
- Budolfson, Marie. Expenditures for living, 166 Iowa Farm Business Association families. Iowa Agr. Exten. Serv., Ames, Iowa, Iowa State College. 1944.
- Bureau of Cooperative Medicine. New plans of medical service. New York, The Bureau. 1940.
- Burke, Edmund R. The national health act. (Address before Chicago Medical Society). U.S. Cong'l Record 86: 35-38. 1940.

- Burns, William J. The Michigan enabling act for non-profit medical care plans. Law and Cont. Prob. 6: 559-564. 1939.
- Butler, Allan M. Quality of medical care under a national health act. Amer. J. Public Health 30: 145-148. 1940.
- California public opinion on medical care. Med'l Care 4: 245-246. 1944.
- Cavors, David F. Public medical services under Title XIII of the national health bill. Law and Cont. Prob. 6: 618-627. 1939.
- Ciocco, Antonio, Chief of Statistical Methods Section, U.S. Public Health Service. Washington, D.C. Information on quantitative standards for medical services. Private communication. 1945.
- Ciocco, Antonio, Davis, Burnett M., and Altman, Isidore. Measure of medical resources and requirements. Med'l Care 3: 314-315. 1943.
- Ciocco, Antonio, Klein, Harry, and Palmer, Carroll E. Child health and the selective service standards. U.S. Public Health Reports 56: 2365-2375. 1941.
- Collins, Selwyn D. A general view of the causes of illness and death at specific ages. U.S. Public Health Reports 50: 237-255. 1935.
- Collins, Selwyn D. Age incidence of illness and death considered in broad disease groups. U.S. Public Health Reports 50: 1404-1426. 1935.
- Collins, Selwyn D. Age incidence of specific causes of illness. U.S. Public Health Reports 50: 1404-1426. 1935.
- Collins, Selwyn D. Cases and days of illness among males and females with special reference to confinement in bed. U.S. Public Health Reports 55: 47-93. 1940.
- Collins, Selwyn D. Causes of illnesses in 9,000 families based on nation-wide periodic canvasses, 1928-32. U.S. Public Health Reports 48: 1933.
- Collins, Selwyn D. Frequency of eye refractions in 9,000 families in nation-wide periodic canvasses, 1928-1931. U.S. Public Health Reports 49: 649-666. 1934.
- Collins, Selwyn D. Frequency of health examinations in 9,000 families, based on nation-wide periodic canvasses, 1928-1931. U.S. Public Health Reports 49: 321-346. 1934.

Collins, Selwyn D. History and frequency of smallpox vaccinations and cases in 9,000 families, based on nation-wide periodic canvasses, 1928-1931. U.S. Public Health Reports 51: 443-479. 1936.

Collins, Selwyn D. The incidence and causes of illness at specific ages. Milbank Memorial Fund Quar. 13: 321-338. 1935.

Committee on the Costs of Medical Care. The five-year program of the Committee on the Costs of Medical Care. Publication of the Committee on Costs of Medical Care: no. 1. Chicago, The Univ. of Chicago Press. 1928.

Committee on the Costs of Medical Care. Medical care for the American public: the final report of the Committee on the Costs of Medical Care, adopted 1932. Publication of the Committee on Costs of Medical Care: no. 28. Chicago, The Univ. of Chicago Press. 1932.

Committee of Physicians for the Improvement of Medical Care, Inc. A summary and critical analysis of the medical features of the Wagner-Murray-Dingell Bill (S 1161, H R 2831). Statement no. 12. New Haven, Conn., The Committee, 1943.

Cone, Frederick M. Income payments by states, 1940. Survey of Current Business 21, no. 8: 11-17. 1941.

Conference on rural medicine. Cooperstown, New York, 1938. Rural medicine: proceedings. Springfield, Ill., C.C. Thomas. 1939.

Creamer, Daniel, and Morwin, Charles. State distribution of income payments, 1929-41. Survey of Current Business 22, no. 7: 19-26. 1943.

Crosby, Edwin L. Rural hospital morbidity: statistical analysis of 13,014 consecutive hospital discharges in Otsego County, New York. In Conference on Rural Medicine. Cooperstown, New York, 1938. Rural medicine; proceedings. p. 26-41. Springfield, Ill. C.C. Thomas. 1939.

Curran, Jean Alonzo. Provision of better medical care. Milbank Memorial Fund Quar. 23: 7-19. 1945.

Dauer, C.C. Prevalence of poliomyelitis in the United States in 1940. U.S. Public Health Reports 56: 875-883. 1941.

Davis, Graham L. Content and administration of medical care programs: hospitals and hospital construction. Amer. J. Public Health 34: 1239-1243. 1944.

- Davis, Graham L. Those horse and buggy doctors must go. *Modern Hospital* 62, no. 4: 50-52. 1944.
- Davis, Michael M. America organizes medicine. New York, Harper Bros. 1941.
- Davis, Michael M. Canada's national health bill. *Med'l Care* 3: 127-144. 1945.
- Davis, Michael M. Health care for all. *Survey Graphic* 34: 280-291, 304. 1945.
- Davis, Michael M. Health for the nation. *Survey Graphic* 33: 491-493, 510, 511. 1944.
- Davis, Michael M. Health insurance plans. *Med'l Care* 4: 20. 1944.
- Davis, Michael M. Health -- today and tomorrow. *Survey Graphic* 34: 40-42. 1945.
- Davis, Michael M. The legs of the hospital bed. *Survey Graphic* 34: 328-329. 1945.
- Davis, Michael M. Statesmen discover medical care. *Survey Graphic* 34: 101-102. 1945.
- Denison, Edward F. and Slater, Alvin. Incomes in selected professions. *Survey of Current Business* 23, no. 8: 16-20. 1943.
- Des Moines Register. County health bill defeated. *The Des Moines Register*. Des Moines, Iowa. Mar. 23, 1945.
- Des Moines Register. Sioux City hits county health plan. *The Des Moines Register*. Des Moines, Iowa. p. 1. Jan. 23, 1945.
- Derryberry, Mayhew, Weissman, Arthur, and Coswell, George. What the public knows about health. New York, American Museum of Health, Inc. 1942. Mimeo.
- Dodd, Paul A. and Penrose, E. F. Economic aspects of medical services with special reference to conditions in California. Washington, D.C., Graphic Arts Press. 1939.
- Dorn, Harold F. Mortality rates and economic status in rural areas. *U.S. Public Health Reports* 55: 3-12. 1940.
- Dorn, Harold F. The relative amount of ill health in rural and urban communities. *U.S. Public Health Reports* 53: 1181-1195. 1938.

Dorn, Harold F. Rural health and public health programs. Rural Sociol. 7: 22-23. 1942.

Dublin, Louis I. The duration and thereafter for public health nursing. Public Health Nursing 36: 1-11. 1944.

Edwards, Gladys Talbott. Director of Education, Farmers Educational and Cooperative Union. Denver, Colo. Information on health co-operatives sponsored by Farmers Union. Private communication. 1945.

Edwards, Gladys Talbott. Statement at conference in Chicago, Ill., 1944. In Farm Foundation. Medical care and health services for rural people. Chicago, The Foundation. 1944.

Ellsworth, Von T. A health program for California farmers. Med'l Care 1: 33-38. 1941.

Epstein, Abraham. Insecurity, a challenge to America. p. 21-79, 399-487, 851-858. New York, Random House. 1938.

Evanson, Mrs. Jerome. In rural health the greatest need is organized planning. Hospitals 18, no. 12: 28-30. 1944.

Falk, Isidore S. An introduction to national problems in medical care. Law and Cont. Prob. 6: 497-506. 1939.

Falk, Isidore S. Proposed extension of the Social Security program, with special reference to health and medical aspects. Address at Massachusetts conference of social work, Boston, 1943. U.S. Cong'l Record 90: A 65-68. 1944.

Falk, Isidore S., Klem, Margaret C., and Sinai, Nathan. The incidence of illness and the receipt and costs of medical care among representative family groups. Publication of the Committee on the Costs of Medical Care: no. 26. Chicago, The Univ. of Chicago Press. 1938.

Falk, O. H., McGill, K. H. and Rountree, L. E. Analysis of reports of physical examination summary of data from 19,923 reports of physical examination. U.S. Sel. Serv. Sys. Med'l Statistics Bul. 1. 1941. (Also in Rountree, L. G., McGill, L. E. and Falk, O. H. Health of Selective Service Registrants. J. Amer. Med'l Assoc. 118: 1223-1277. 1942).

Falk, Isidore S., Rorom, Rufus, and Ring, Martha D. The costs of medical care. Committee on Costs of Medical Care, Pub. No. 27. Chicago, The Univ. of Chicago Press. 1938.

- Farm Bureau Insurance Companies. Pamphlets. Columbus, Ohio. 1944.
- Farm Foundation. Medical care and health services for rural people. Chicago, The Foundation. 1944.
- Faulkner, Edwin J. Accident-and-health insurance. p. 4-24, 31-50, 281-307. New York, McGraw-Hill Book Co. 1940.
- Fountain, Clayton W. A C.I.O. view of what labor asks in hospitalization. Hospitals 18, no. 12: 43-46. 1944.
- Fowler, William. Principal provisions of smallpox vaccination laws and regulations in the United States. U.S. Public Health Reports 56: 167-189. 1941.
- Freeman, Allan W. A study of rural public health service. New York, The Commonwealth Fund. 1933.
- Friedman, A. S. Medical care for relief ailments in Johnson County, Iowa. Unpublished M.A. thesis. Iowa City, Iowa, The State University of Iowa Library. 1937.
- From the current stream. Med'l Care 4: 253. 1944.
- From health honor roll to national reporting area. Amer. J. Public Health 34: 1099-1102. 1944.
- Gallup, George. A welfare post in cabinet favored. Des Moines Register, Des Moines, Iowa. Editorial page. Sept. 19, 1945.
- Gerlach, Charles L. Address before Lehigh County Medical Society. U.S. Cong'l Record 89: A4989. 1943.
- Goldmann, Franz. Medical care for farmers. Med'l Care 3, no. 2: 19-35. 1943.
- Goldman, Franz. Public medical care. New York, Columbia Univ. Press. 1945.
- Goulding, Fern. Health fallacies of freshman college women. Unpublished M.S. thesis. Ames, Iowa, Iowa State College Library. 1943.
- Great Northern Life Insurance Co. Specimen copy of family hospital and surgical expense insurance policy. Chicago, Ill. 1945.
- Green, William. Statement endorsing S1050. U.S. Cong'l Record 91: A2819. 1945.

- Gustafson, A. C., Chief Clerk, Iowa State House of Representatives. Des Moines, Iowa. Information concerning hearings and legislative debates in Iowa General Assembly. Private communication. 1944.
- Gwinn, John S., Sec'y of Mass. Bankers' Assce. Boston Mass. Information on Blue Triangle plan. Private communication. 1945.
- Haag, Redel. Grinnell, Iowa. Information on prepayment plan of community hospital. Private communication. 1945.
- Hagood, Margaret J. Rural level of living indexes for counties of the United States, 1940. Washington, D.C. U.S. Dept. of Agr. (B.A.E.) 1943.
- Hard, William. Medicine and monopoly. Survey Graphic 27: 606-609, 631-635. 1938.
- Hill, A. Bradford. Principles of medical economics. London, The Lancet, Ltd. 1937.
- Hoge, V. M. Rural hospital needs. Reprint. Hospitals. Nov., 1938.
- Hohaus, Reinhard A. The federal old-age and survivor's insurance plan. New York, Metropolitan Life Insurance Co. 1939.
- Hohaus, Richard A. Group insurance plans. (Reprint from National Conference on Social Security, 1944. Social Security in America; addresses.) Washington, D.C., U.S. Chamber of Commerce. 1944.
- Hohaus, Reinhard A. Social insurance in a democracy. (Address at 37th annual meeting of American Life Convention, Chicago.) New York, Metropolitan Life Insurance Co. 1942.
- Holland, Dorothy F. The disabling diseases of childhood: their characteristics and medical care as observed in 500,000 children in 83 cities canvassed in the National Health Survey, 1935-1936. U.S. Public Health Reports 55: 135-156. 1940.
- Hollingsworth, Helen, et al. Family expenditures for medical care: five regions. U.S. Dept. of Agr. Misc. Pub. 402. 1941.
- Hollingsworth, Helen. Medical care and costs in relation to family income; a statistical source book. Washington, D.C., Federal security agency, Social security board, Bureau of research and statistics. 1943.
- Hoyt, Elizabeth E. Consumption in our society. p. 75, 82-84, 215-216. New York, McGraw-Hill Book Co. 1938.

The incomes of physicians: a comparison of published studies. Med'l Care 4: 221-227. 1944.

Iowa Code of Iowa, 1939. Title VII, Ch. 105-107; Title XX, Ch. 403. 1939.

Iowa General Assembly. Acts 43: 105. 1929; 47: 353. 1937; 48: 324. 1939; 50: 708-709. 1943; 51: 276-278. 1945.

Iowa General Assembly. House. Journal of the House. 51: 876, 877. 1945.

Iowa General Assembly. Senate. Journal of the Senate. 51: 483. 1945.

Iowa Medical Service. Subscriber's certificate: surgical and medical. Des Moines, Iowa, The Service. 1945.

Iowa Post-war Rehabilitation Commission. Report presented to the Governor of Iowa and the Iowa fifty-first General Assembly. Des Moines, Iowa. 1945.

Iowa State Department of Health. Biennial Report, 1929/30; 1931/32/ 1933/34; 1935/36; 1937/38; 1939/40; 1941/42; 1943/44. 1930-1944.

Iowa State Department of Health. For Iowa's health: a brief description of the Iowa State Department of Health. Pub. Health Bul. 55, no. 1: 1-24. 1941.

Iowa State Department of Health. Public health nursing on a whole-time county-wide basis. Public Health Bul. 53, no. 2, 1939.

Iowa State Planning Board. Public health resources in Iowa. Des Moines, The Board. 1938.

Jackson, F. W. Canadian planning for an integrated program of preventive and curative medicine: address delivered at conference at Chicago, 1944, sponsored by Farm Foundation. In Farm Foundation, Medical care and health services for rural people. p. 154-158. Chicago, The Foundation. 1944.

Jackson, F. W., Deputy Minister, Department of Health and Public Welfare. Winnipeg, Manitoba. Information on Canadian municipal doctor plan. Private communication. 1944.

Jones, Zane L., Special field representative, Farm Bureau Life Insurance Company. Columbus, Ohio. Information on Ohio Farm Bureau Federation plan for group hospitalization and surgical benefits. Private communication. 1945.

- Journal of the American Medical Association. The private physician and preventive medicine. [Editorial] J. Amer. Med'l Assoc. 99: 150-152. 1932.
- Kaufman, Harold F. Extent of illness and use of medical services in rural Missouri. Mo. Agr. Exp. Sta. Progress report no. 5. 1945.
- Kirkpatrick, K. A. Minneapolis, Minn. Information on rural membership in Blue Cross plans in Minnesota. Private communication. 1945.
- Klein, Lawrence R. The cost of a "Beveridge Plan" in the United States Quar. J. of Econ. 53: 423-427. 1944.
- Kleinschmidt, L. S. How can better rural health be developed? Rural Sociol. 9: 20-27. 1944.
- Krats, F. W. The present status of full-time local health organization. U. S. Public Health Reports 57: 194-196. 1942.
- Lachner, Anne, Director of Public Relations, Hospital Service of Iowa. Des Moines, Iowa. Information on Iowa Blue Cross Plan. Private communication. 1945.
- Lamb, Robert A. Legislative Representative, United Steel Workers, CIO. Washington, D. C. Information concerning stand at public meeting on Wagner-Murray-Dingell Bill. Private communication. [Enclosure.] 1944.
- La Mont, Stewart M. Theory and practice of accident and health insurance. p. 1-10, 80-86. Philadelphia, The Spectator. 1941.
- Larson, Gus. Farmers can have better health services. Country Gentlemen 115; no. 10; 14, 70, 72, 73. 1945.
- Larson, Gus. Surplus medical equipment for rural areas. The Agricultural Situation 29, no. 8: 20-21. 1945.
- Laufer, Joseph. Ethical and legal restrictions on contract and corporate practice of medicine. Law and Cont. Prob. 6: 515-527. 1939.
- League of Nations. Skeleton standard report on the state of health of the population and factors affecting it. League of Nations Bul. of Health Organisations 8: 63-86. 1939.

- League of Nations. Health organisation. Public health and social problems in the United States of America: report by the participants in a study tour arranged by the Health Organisation of the League of Nations and the United State Public Health Service (Nov. 4th - Dec. 7th, 1932). League of Nations Bul. of the Health Organisation 5: 747-800. 1936.
- League of Nations. Report on the work of the Health Organisation between Jan. 1938 and April 1939 and on its 1939 programme. (Part III c on health indices) League of Nations Bul. of the Health Organisation 8: 41-43. 1939.
- Lee, Roger I. and Jones, Lewis W. The fundamentals of good medical care and an estimate of the service required to supply the medical needs of the United States. Publication of the Committee on Costs of Medical Care, no. 22. Chicago, The Univ. of Chicago Press. 1933.
- Leland, R. B. Income from medical practice. J. Amer. Med'l Assoc. 96: 1685-1691. 1931.
- Leuth, Harold C. Future educational objectives of medical officers. J. Amer. Med'l Assoc. 125: 1099-1103. 1944.
- Leuth, Harold D. Post-war planning: results of pilot questionnaire to physicians in service. J. Amer. Med'l Assoc. 125: 558-560. 1944.
- Leven, Maurice. The incomes of physicians. Committee on Costs of Medical Care, Pub. No. 24. Chicago, The Univ. of Chicago Press. 1932.
- Liebeler, Virginia M. How the Blue Cross came to rural America. Modern Hospital 62, no. 2: 53-56. 1944.
- Lively, C. E. The physical status and health of farm security clients in southeast Missouri. Mo. Agr. Exp. Sta. Prelim. Report no. 1, 1942.
- Lively, C. E. and Lionberger, Herbert F. The physical status and health of farm tenants and farm laborers in southeast Missouri: the physical defects of adult females. Mo. Agr. Exp. Sta. Prelim. Report no. 3. 1942.
- Lively, C. E. and Lionberger, Herbert F. The physical status and health of farm tenants and farm laborers in southeast Missouri: the physical defects of adult males. Mo. Agr. Exp. Sta. Prelim. Report no. 2, 1942.

- Lott, George M. Mental hygiene services in rural areas: the program of the Mental Hygiene Division, Suffolk County Department of Health, New York. U.S. Public Health Reports 57: 1115-1126. 1942.
- MacEachern, M. T. Hospitals standardization: report of hospital standardization for the year 1932. American College of Surgeons Yearbook, 1932/33. p. 88. 1933.
- Maack, John B. Banks merchandise health. Printers Ink: 210, no. 11: 90-91. 1945.
- Maack, John B. Blue triangle plan gets under way. Banking 37, no. 2: 44-53. 1945.
- Mangus, A. R. Health and human resources in rural Ohio. Ohio State Univ. Dept. of Rural Econ. and Rural Sociol. Bul. 176. 1944.
- Martin, John L. Income payments to individuals by states, 1929-39. Survey of Current Business 20, no. 10: 8-12. 1940.
- Maryland University. Committee on Medical Service and Public Relations of the Medical and Chirurgical Faculty of Maryland University. Report of the medical profession toward the federalization of medicine. Baltimore, Md. 1944.
- Maslow, Harold. The background of the Wagner National Health Bill. Law and Cont. Prob. 6: 606-618. 1939.
- Maslow, Harold. The characteristics and mobility of rural physicians: a study of six Wisconsin counties. Rural Sociol. 3: 267-278. 1938.
- McCoy, C. C. Rural Medicine and Economics. In Conference on rural medicine, Cooperstown, New York. Rural medicine: proceedings, p. 196-209. Springfield, Ill., C. C. Thomas. 1939.
- McDaniel, E. C., Business Manager, South Plains Cooperative Association Inc. Amherst, Tex. Information on South Plains Cooperative Association. Private communication. 1945.
- Macintosh, J. M. Social medicine. Med'l Care 3, no. 2: 3-5. 1945.
- McNamara, Robert L. Changes in the characteristics and number of practicing physicians in rural Ohio, 1932-1942. Rural Sociol. 9: 11-20. 1944.
- Medical Care. Post-war issues today. [Editorial] Med'l Care 3: 166-168. 1945.
- Meier, Iola and Lively, C. B. Family health practices in Dallas County, Missouri. Mo. Agr. Exp. Sta. Res. Bul. 369. 1945.

Mengelberg, Kaethe. Doctors in demand. Iowa Farm Economist 8, no. 10: 12. 1942.

Mengelberg, Kaethe. The farmer's physician. Iowa Farm Economist 8, no. 12: 11. 1942.

Mengelberg, Kaethe and Anderson, C. Arnold. Changes in distribution of physicians with respect to population for physicians in different sizes of communities. Unpublished manuscript. Ames, Iowa, Iowa State College, Dept. of Econ. and Sociol. 1942.

Mengelberg, Kaethe and Anderson, C. Arnold. Distribution of physicians in Iowa: how it changed during the last 20 years. Unpublished manuscript. Ames, Iowa, Iowa State College, Dept. of Econ. and Sociol. 1942.

Mengelberg, Kaethe and Anderson, C. Arnold. Rural communities in Iowa without physicians. Unpublished manuscript. Ames, Iowa, Iowa State College, Dept. of Econ. and Sociol. 1942.

Mengelberg, Kaethe and Anderson, C. Arnold. Turnover rate of physicians. unpublished manuscript. Ames, Iowa, Iowa State College, Dept. of Econ. and Sociol. 1942.

Mengelberg, Kaethe, and Anderson, C. Arnold, and Ryan, Bryce. The farmer's doctor is getting older. Unpublished manuscript. Ames, Iowa, Iowa State College, Dept. of Econ. and Sociol. 1942.

Michigan State Medical Society. Committee on Survey of Medical Services and Health Agencies. Report. p. 57-64. 1933. (Original not seen; cited in American Medical Association. Bureau of Medical Economics. Distribution of physicians. p. 37-38. Chicago, The Association. 1936.)

Mies, Elsie, Chairman. Living standards for rural people. American Country Life Conference. Farm and rural health after the war; proceedings 24: 66-71. 1944.

Miller, A. L. Extension of remarks concerning department of national health in the cabinet. U.S. Cong'l Record 91: A. 129. 1945.

Montgomery, James E. Newton County, Mississippi, Agricultural Health Association. Washington, D. C., U.S. Dept. of Agr. (B.A.E.) 1944. Mimeo.

Mott, Fred D., Chief Medical Officer, Farm Security Administration. Washington, D. C. Information on F.S.A. health program. Private communication. 1945.

Mott, Fred D., M.D. Rural health parity: federal-state cooperation. Land Policy Review 8, no. 1: 9-14. 1945.

Mountin, Joseph W. Administration of public medical service by health department. Amer. J. Public Health 30: 138-144. 1940.

Mountin, Joseph W. Medical care, a private enterprise or a social service? Unpublished manuscript. Washington, D.C., U.S. Public Health Service. 1944.

Mountin, Joseph W. and Flook, Evelyn. Distribution of health services in the structure of state government. (Series of articles in U.S. Public Health Reports: also reprinted in Public Health Bul. no. 184, with separate reprint number for each chapter, 1943).

Ch. 1. The composite pattern of state health services. U.S.P.H.R. 56: 1673-1698. 1941. Also reprint 2306.

Ch. 2. Communicable disease control by state agencies. Ibid., 56: 2233-2258. Also reprint 2334.

Ch. 3. Tuberculosis control by state agencies. Ibid., 57: 65-90. Also reprint 2348.

Ch. 4. Venereal disease control by state agencies. Ibid., p. 553-578. Also reprint 2369.

Ch. 5. Sanitation by state agencies. Ibid., 57: 885-902, 917-948. Also reprint 2386.

Ch. 6. Medical and dental care by state agencies. Ibid., 57: 1195-1209, 1235-1274. Also reprint 2395.

Ch. 7. Maternity-child health by state agencies. Ibid., 57: 1791-1821. Also reprint 2425.

Ch. 8. Industrial health activities by state agencies. Ibid., 58: 33-58. Also reprint 2439.

Ch. 9. Central state services affecting all branches of public health work. Ibid., 58: 249-278. Also reprint 2449.

Ch. 10. State health department organization. Ibid., 58: 541-577. Also reprint 2468.

Mountin, Joseph W., Pennell, Elliott H., and Flook, Evelyn. Hospital facilities in the United States. U.S. Public Health Bul. 243. 1943.

Mountin, Joseph W., Pennell, Elliott H., and Hankster, Emily. A study of variation in reports on hospital facilities and their use. U.S. Public Health Reports 53: 17. 1938.

Mountin, Joseph W., Pennell, Elliott H., and Hankla, Emily. A study of variations in reports on hospital facilities and their use. U.S. Public Health Reports 53: 17-25. 1938.

Mountin, Joseph W., Pennell, Elliott H., and Nicolay, Virginia. Location and movement of physicians, 1923 and 1938: age distribution in relation to county characteristics. U.S. Public Health Reports 58: 483-490. 1943.

Mountin, Joseph W., Pennell, Elliott H., and Nicolay, Virginia. Location and movement of physicians, 1923 and 1938: effect of local factors upon location. U.S. Public Health Reports 57: 1945-1975. 1942.

Mountin, Joseph W., Pennell, Elliott H., and Nicolay, Virginia. Location and movement of physicians, 1923 and 1938: general observation. U.S. Public Health Reports 57: 1353-1375. 1942.

Mountin, Joseph W., Pennell, Elliott H., and Nicolay, Virginia. Location and movement of physicians, 1923: turnover as a factor affecting state totals. U.S. Public Health Reports 57: 1752-1761. 1942.

Murray, James A. Statement on introduction of Social Security Bill of 1945. (S1060) U.S. Con'l Record 91: 50-95. 1945.

Murray, Phillip. Statement endorsing S1060. U.S. Cong'l Record 91: A2819. 1945.

National Health Conference, Washington, D.C. The nation's health. Washington, U.S. Govt. Print. Off. 1939.

National Health Conference. Proceedings of the National Health Conference, July 18-20, 1938, Washington, D.C. Washington, D.C., U.S. Govt. Print. Off. 1938.

The National Physicians Committee for the Extension of Medical Service. \$3,048,000,000 of political medicine yearly in the United States. Chicago, The Committee. 1943.

National Tuberculosis Association. Tuberculosis sanitarium planning, New York, The Association. 1944

Nelson, Lowry. Distribution, age, and mobility of Minnesota physicians, 1912-1936. Amer. Sociol. Rev. 7: 792-801. 1942.

Neubrand, Dorothy, Statistics Dept., Associated Hospitals Service, Inc. Sioux City, Iowa. Information on rural family enrollment in Blue Cross. Private communication. 1945.

Norby, Maurice. Hospital service plans: their contract provisions and administrative procedures. Law and Cont. Prob. 5: 545-558. 1939.

Olson, Martin D., President, Iowa Medical Service. Des Moines, Iowa. Information on Iowa Medical Service Plan. Private communication. 1944, 1945.

Palmer, George T. Recent developments in the appraisal of public health work. Public Health Nursing. 36: 22-25. 1944.

Parran, Thomas. Public health and economics. Social Service Review 12: 207. 1938.

- Paullin, J. E. The planning of medical service for present needs and future requirements. J. Amer. Med'l Assoc. 122: 411-14. 1943.
- Pearl, Raymond. Introduction to medical service for present needs and future requirements. J. Amer. Med'l Assoc. 122: 411-14. 1943.
- Pearl Raymond. Introduction to medical biometry and statistics. Third edition. Philadelphia, Penn., W. B. Saunders Co. 1940.
- Pearson, Drew. Medical equipment. Des Moines Register, Des Moines, Iowa. Editorial page. May 25, 1945.
- Peart, Hartley F. and Hassard, Howard. The organization of California Physicians' Service. Law and Cont. Prob. 6: 564-582. 1939.
- Pennell, Elliott. Location and movement of physicians: methods for estimating physician resources. U.S. Public Health Reports 59: 281-305. 1944.
- Pennell, Elliott H., Mountin, Joseph W., and Pearson, Kay. Business census of hospitals, 1935. U.S. Public Health Reports. Supplement no. 154: 17. 1939.
- Pennell, Elliott H., Mountin, Joseph W., and Pearson, Kay. Existence and use of hospital facilities among the several states in relation to wealth and expressed by per capita income. U.S. Public Health Reports 55: 822-846. 1940.
- Perrott, George St. J. Findings of selective service examinations. Milbank Memorial Fund Quar. 22: 358-366. 1944.
- Perrott, George St. J. The physical status of young men, 1918 and 1941. Milbank Memorial Fund Quar. 19: 337-344. 1944.
- Perrott, George St. J. and Holland, Dorothy. Population trends and problems of public health. Milbank Memorial Fund Quar. 18: 345-402. 1940.
- Pharmacists and the Wagner Bill. Med'l Care 4: 89-90. 1944.
- Physicians Forum. Boycott and strike. The Physicians Forum. Bul. p. 1-2. August, 1944.
- Physicians Forum. S1161. The Wagner-Murray-Dingell Bill and your health. New York, The Forum. 1943.
- Pink, Louis H. Freedom from fear. p. 23-29, 72-122, 140-149. New York, Harper and Bros. 1944.
- Pink, Louis. The story of Blue Cross. Public Affairs pamphlets: no. 101. New York, Public Affairs Committee, 1945.

Plumley, Margaret Lowell. Federal aid to hospitals: wartime assistance under the Lanham Act. Med'l Care 3, no. 2: 6-14. 1943.

Pohlmann, Kenneth E. Lest we forget: the rural medically indigent. Hospitals 18, no. 12: 30-34. 1944.

Porter, Amy. Do we want national health insurance? Colliers 117, no. 4: 20-23, 99. 1945.

President's Research Committee on Social Trends. Recent social trends in the United States. New York, McGraw-Hill Book Co. Vol. 1, p. ivi, ivii, 1061-1113. 1933.

Proger, Samuel. The Joseph H. Pratt Diagnostic Hospital. New Eng. J. of Med. 220: 771-779. 1939.

Rathe, H. W. Waverly, Iowa. Information on Rolfe Memorial Clinic. Private communication. 1945.

Raub, Benjamin D., Jr. The anti-trust prosecution against the American Medical Association. Law and Cont. Prob. 6: 595-605. 1939.

Reuss, Carl F. Farmer views on the medical situation. Wash. Agr. Exp. Sta. V. circ. no. 20. Agric. 1944.

Rhoton, Paul. Health misconceptions of prospective teachers. State College, Penn., Pennsylvania State College. 1932.

Rippeto, Robert. Is there a doctor in the country? Sociol. Serv. Rev. 17: 188-191. 1943.

Roberts, Kingsley. What postwar practice do doctors want? Med'l Care 4: 203-205. 1944.

Robinson, R. W. Laconia, N.H. Information on the Laconia Clinic. Private communication. 1945.

Rorem, C. Rufus. Community hospital and medical plans. Chicago, The American Hospital Association. 1944.

Rorem, C. Rufus. Enabling legislation for non-profit hospital service plans. Law and Cont. Prob. 6: 528-544. 1939.

Rorem, C. Rufus, Director, Hospital Service Plan Commission, American Hospital Association, Chicago, Illinois. Information on Blue Cross plans. Private communication. 1945.

Rorem, C. Rufus. The "Municipal doctor" system in rural Saskatchewan. Committee on Costs of Medical Care. Pub. No. 11. Chicago, The Univ. of Chicago Press. 1931.

Rowntree, Leonard G., McGill, E. H. and Edwards, T. I. Causes of rejections and the incidence of defects among 18 and 19 year old selective service registrants. J. Amer. Med'l Assoc. 123: 181-185. 1943.

Rural Communities of Wisconsin. Wisc. Agr. Exp. Sta. Circ. 353. 1945.

Sarvis, Lewis J. and Davis, Graham L. South Haven hospital: it is efficient and expandable. Reprint. Hospitals. Sept. 1943.

Sayre, Mrs. Raymond A. Des Moines, Iowa. Information on Iowa Farm Bureau Federation survey of health service needs of Iowa farm families, 1937. Private communication. 1945.

Schultz, William H. Iowa State Department of Health, Des Moines, Iowa. Information on milk sanitation in Iowa. Private communication. 1945.

Shadid, Michael A. A doctor for the people: the autobiography of the founder of America's first co-operative hospital. New York, The Vanguard Press. 1939.

Shadid, Michael A., Medical Director. Elk City, Oklahoma. Information on Farmers' Union Hospital Association. Private communication. 1944.

Shearer, M. W., Business Manager. Los Angeles, Calif. Information on Ross-Loos Medical Group. Private communication. 1945.

Sigerist, Henry E. Medicine and human welfare. New Haven, Conn., Yale Univ. Press. 1941.

Simmons, Dorothy. Expenditures for living of Iowa Farm Business Association families. Iowa Agr. Exten. Serv., Ames, Iowa, Iowa State College. 1942.

Slifer, Walter L. Income of independent professional practitioners. Survey of Current Business 18, no. 4: 12-16. 1936.

Smith, Joyce. Blue Cross for rural America. The Nation's Agriculture 9, no. 9: 8, 12-13. 1944.

Sommers, Herbert J. Infant mortality in rural and urban areas. U.S. Public Health Reports 57: 1494-1501. 1942.

Southmayd, Henry J. and Smith, Ceddes. Small community hospitals. New York, The Commonwealth Fund. 1944.

South Plains Cooperative Hospital Association, Inc. Information about services. Amherst, Texas, The Association, 1945.

Statement by Governing Board of National Organization for Public Health Nursing, 1944. (Original not seen. Cited in Nursing Associations endorse health insurance. Med'l Assoc. 4: 249. 1944.)

Stauman, K. Health indices established in an experimental study of the city of Brussels. League of Nations Bul. of the Health Organisation 7: 122-167. 1938.

Stauman, K. Health indices in an experimental study of a rural district in Hungary. League of Nations Bul. of the Health Organisation 6: 766-821. 1927.

Stauman, K. Health indices for the city of New Haven, Connecticut. League of Nations Bul. of the Health Organisation 5: 997-1801. 1936.

Stauman, K. and Falk, I. S. Health indices; a study of objective indices of health in relation to environment and sanitation. League of Nations Bul. of Health Organisation 5: 901-996. 1936.

Stock, Harold F. In post-war days rural health will pose challenge. Hospitals 18, no. 12: 35-38. 1944.

Streeter, Carrol P. A real health program for rural America. Hospitals 18, no. 12: 25-28. 1944.

Swartzendruber, Mrs. George Y. Cedar Rapids, Iowa. Information on survey of health facilities by Iowa Federation of Women's Club. Private communication. 1945.

Thompson, Warren S. Outstanding population trends affecting problems of social welfare. Milbank Memorial Fund Quar. 18: 192-196. 1940.

Thompson, Warren S. and Whelpton, P. K. Population trends in the United States. p. 320. New York, McGraw-Hill. 1933.

Underwood, Felix. Auent the new Wagner bill. U.S. Cong'l Record 89: 4206. 1943.

U. S. Bureau of Home Economics. Family expenditures for medical care, U.S. Dept. of Agr. Misc. Pub. 402. 1941.

U.S. Bureau of Human Nutrition and Home Economics. Rural family spending and saving in wartime. U.S. Dept. of Agr. Misc. Pub. 520. 1943.

U.S. Bureau of Human Nutrition and Home Economics. What families spend for medical care. Washington, The Bureau. 1944. Mimeo.

- U.S. Bureau of Census. Vital statistics of the United States, 1940.
Part II. 1942;....1941, Part II. 1943;....1942, Part II. 1944.
- U.S. Bureau of Census. Vital statistics-special reports. Vol. 13. 1942;
Vol. 19. 1944; Vol. 20. 1945.
- U.S. Bureau of Census. Vital statistics of the United States. Supplement
1939/40. Part III. 1943.
- U.S. Bureau of Census. Vital statistics rates in the United States, 1900-
1940. Washington, U.S. Gov't Print. Off. 1943.
- U.S. Children's Bureau. Services for crippled children under the Social
Security Act, Title V, part 2: development of program, 1936-38,
Bur. Pub. no. 258. 1941.
- U.S. Code. 1940. Title 42. 1940.
- U.S. Code. 1940. Supp. IV, 1941-1945, Title 42. 1945.
- U.S. Committee on Economic Development. Report to the President of the
Committee on Economic Development. Washington. U.S. Gov't Print.
Off. p. 41-43. 1935.
- U.S. Congress. Senate. Report no. 1139 [on S1620. National Health Bill]
Seventy-sixth Congress, first session. 1939.
- U.S. Congress. Senate. Committee on Education and Labor. Construction
of Hospitals. Hearings...Seventy-sixth Congress, third session,
on S5230....March 18 and 19, 1940. Washington, U.S. Gov't Print.
Off. 1939.
- U.S. Congress. Senate. Committee on Education and Labor. Investigation
of manpower resources. Hearings...Seventy-seventh Congress, second
session, on S. Res. 291....p.662-699. Washington, U.S. Gov't Print.
Off. 1942-43.
- U.S. Congress. Senate. Committee on Education and Labor. To establish a
national health program. Hearings...Seventy-sixth Congress, first
session on S1620....Parts I, II, III. Washington, Gov't Print. Off.
1939.
- U.S. Congress. Senate. Committee on Education and Labor. Wartime health
and education. Hearings...Seventy-eighth Congress, first session,
on S. Res. 74. p. 1799....Washington, U.S. Gov't Print. Off. 1944.
- U.S. Congress. Senate. Committee on Interstate Commerce. Venereal disease
control. Hearings...Seventy-eighth Congress, third session, on
S 3290....Washington, U.S. Gov't Print. Off. 1938.

U.S. Congress. House. Special Committee on Post-War Economic Policy and Planning. Hearings on H.Res. 408, a resolution creating a special committee on post-war economic policy and planning. Washington, U.S. Gov't Print. Off. 1944.

U.S. Cong'l Record 77: 785. S 795. 1933.
 79: 46. H R 150. 1935.
 79: 142. H R 5549. 1945.
 79: 1772, 11127. S 3253, H R 5549. 1935.
 79: 1984, 2230. S 2640, H R 7804. 1935.

 79: 5485, 9898. S J Res 101, H J Res 333. 1935.
 83: 3009. S 3631. 1938.
 83: 3358. H R 9847. 1938.
 84: 1976-1981. S 1620. 1939.
 84: 6737. H Res 316. 1939.

 84: 10,985. S 2963. 1939.
 85: 355. S 658. 1939.
 86: 3. S 3630. 1940.
 86: 881. S 3246. 1940.
 86: 881-882, 7158-7162. S 3230. 1940.

 86: 1040. House Document 604. 1940.
 86: 1042, 1037. S 3269, H R 8289. 1940.
 86: 1439. H R 8439. 1940.
 86: 3314. S 3660. 1940.
 86: 3727. H R 9154. 1940.

 37: 15. H R 384. 1941.
 87: 258. S 489. 1941.
 87: 2609. S 1230. 1941.
 89: 1525. H R 146. 1943.
 89: 3788. H R 2567. 1943.

 89: 5256, 5364. S 1161, H R 2861. 1943.
 90: 3563. H R 4624. 1944.
 91: 1860. H R 2498. 1945.
 91: 2743. H R 2755. 1945.
 91: 5079. S 1050. 1945.

 91: 6738. H R 3561. 1945.
 91: 7869. H R 3845. 1945.

U.S. Dept. of Agriculture. Bureau of Agr. Economics. Surplus medical equipment for rural areas. The Agricultural Situation 29, no. 8: 20-21. 1945.

U.S. Dept. of Agriculture. Interbureau committee on Post-War Programs.

1) Experimental rural health program. Washington, D. C. 1942. Mimeo.

2) Report on activities July-Oct. 1942. 1942. Mimeo.

3) Report on activities Nov. - Dec. 1942. 1943. Mimeo.

U.S. Dept. of Agriculture. Rural family spending and saving in wartime. Miso, Pub. 520. 1943.

U.S. Dept. of Commerce. Office of Civilian Defense Property. Civilian defense property: catalog no. 1.. 1945.

U.S. Farm Security Administration. Annual report, Office of Chief Medical Officer, 1940/41: 180-183. 1941. Excerpt, mimeo.

U.S. Farm Security Administration F.S.A. Medical care program. From annual report. Washington, D. C., 1944. Mimeo.

U.S. Federal Emergency Relief Administration. Rules and regulations no. 7 (Original not seen. Cited in Cavers, David F. Public medical services under title XIII of the National Health Bill. Law and Cont. Prob. 6: 621. 1939.)

U.S. National Resources Planning Board. National resources development report for 1943. U.S. House Doc. 128. Part I. Sec. VIII. Washington, U.S. Gov't Print. Off. 1943.

U.S. National Resources Planning Board. National resources development report for 1943. Part 2: Wartime planning for war and post-war. House Document no. 189. Washington, U.S. Gov't Print. Off. 1944.

U.S. National Resources Committee. The problems of changing population. Washington, U.S. Gov't Print. Off. p. 166-192. 1938.

U.S. National Resources Committee. Population Statistics. p. 1. 30-31, 34, 53. Washington, U.S. Gov't Print. Off. 1938.

U.S. National Resources Committee. Industrial Committee. Family expenditures in the United States. Washington, U.S. Gov't Print. Off. 1941.

U.S. Public Health Service. Annual report of Surgeon General, 1935. p. 67. 1936. (Original not seen. Cited in Maslow, Harold. The background of the Wagner National Health Bill. Law and Cont. Prob. 6: 613. 1939).

U.S. Public Health Service. Illness and medical care in relation to economic status. Preliminary reports. Sickness and Medical Care Series. Bul. 2. Washington, D. C. 1938. Revised 1939.

- U.S. Selective Service System. Analysis of reports of physical examinations. Medical Statistics Bul. no. 1. 1941.
- U.S. Selective Service System. Causes of rejections and incidence of defects: an analysis of reports of physical examinations from 21 selected states. Medical Statistics Bul. no. 2. 1943.
- U.S. 16th Census. 1940. Population 2: 847. 1943.
- U.S. Social Security Board. Fact sheet on social security for farm hands. Washington, D.C. March 1944. mimeo.
- U.S. Social Security Board. Social security status of the population in 1943. Social Security Yearbook, 1943. p. 21-23. Washington, D. C. 1944.
- U.S. 40 Stat. 886. 1918; U.S. 42 Stat. 224. 1921; U.S. 44 Stat. 1024. 1929; U.S. 49 Stat. 629-633. 1935; U.S. 53 Stat. 1380. 1939. U.S. 58 Stat. 696. 1945.
- U.S. Supreme Court. American Medical Association vs. U.S. U.S. Reports 317. 519-536. 1943.
- U.S. Works Progress Administration. Physical accomplishments of W.P.A. projects through June 30, 1938. Release no. 14,329. Washington, D.C. 1938.
- Vogel, Victor H. Administrative organization for mental hygiene. U.S. Public Health Reports 57: 537-542. 1942.
- Wagner, Robert F. Extension of remarks (on National Health Bill). U.S. Cong'l Record 84: A3975-3978. 1939.
- Wagner, Robert F. S1620. (National Health Bill) U.S. Cong'l Record 84: 1976-1981. 1939.
- Wagner, Robert F. Statement upon introduction of national health bill. U.S. Cong'l Record 84: 1981-1982. 1939.
- Walker, W. Frank and Randolph, Caroline R. Influence of a public health program on a rural community: fifteen years in Rutherford County, Tennessee, 1924-1938. New York, The Commonwealth Fund. 1940.
- Williams, R. C. The medical care program for Farm Security Administration borrowers. Law and Cont. Prob. 6: 583-594. 1939.

- Winn, W. E., Treasurer of Pure Milk Association. Chicago, Ill. Information on health insurance for members of Pure Milk Association. Private communication. 1945.
- Winslow, Charles E. A. A half century of the Massachusetts Public Health Association. Amer. J. Public Health 30: 325-335. 1940.
- Winslow, Charles E. A. Health on the farm and in the village. New York, The Macmillan Co. 1931.
- Winslow, Charles, E. A. Public Health in the post-war world. Survey Graphic 34: 119-122, 140-144. 1945.
- Wolman, Abel. The national health program: present status. Amer. J. Public Health 30: 1-8. 1940.
- Yaukey, Jesse B. Variation in amount of different kinds of medical care received by residents in rural and urban communities. Washington, D.C., Farm Security Admin., U.S. Dept. of Agr. 1944.